MISSOURI BOTANICAL GARDEN

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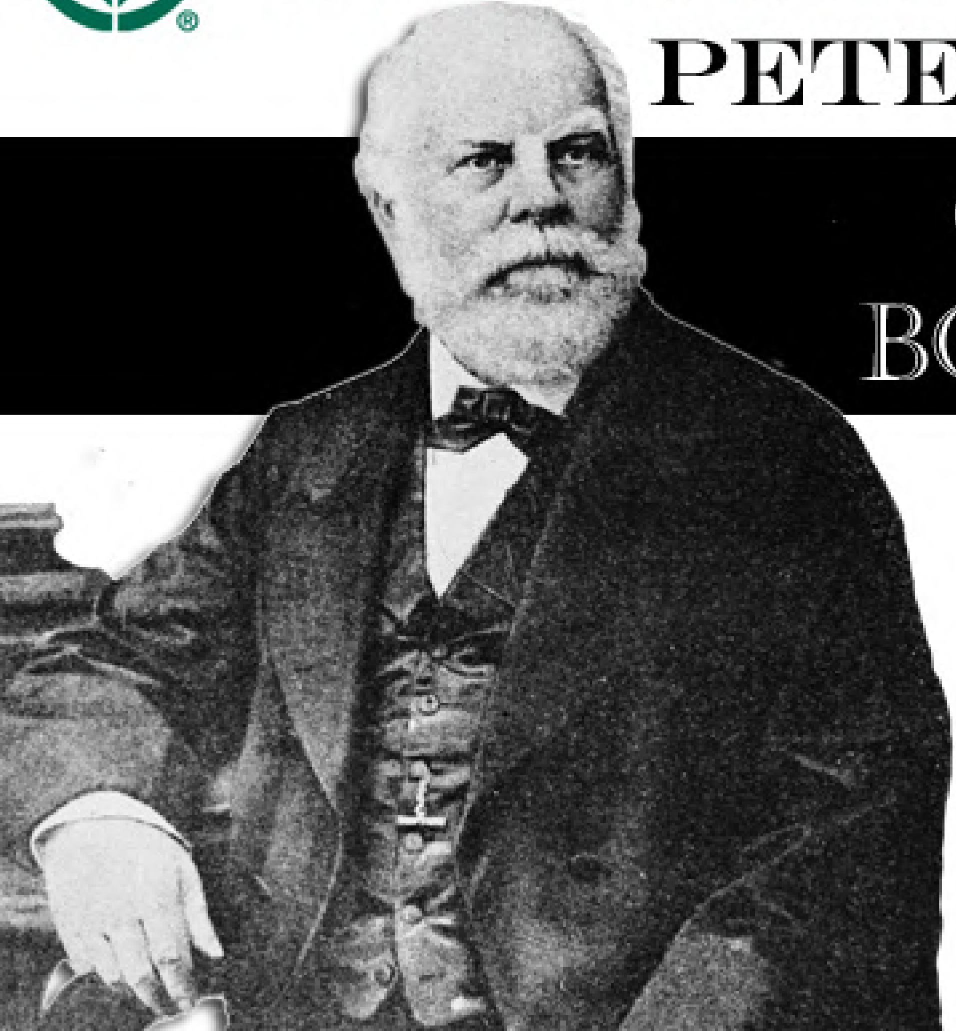

GEORGE ENGELMANN BOTANICAL NOTEBOOKS

Pagination Note:
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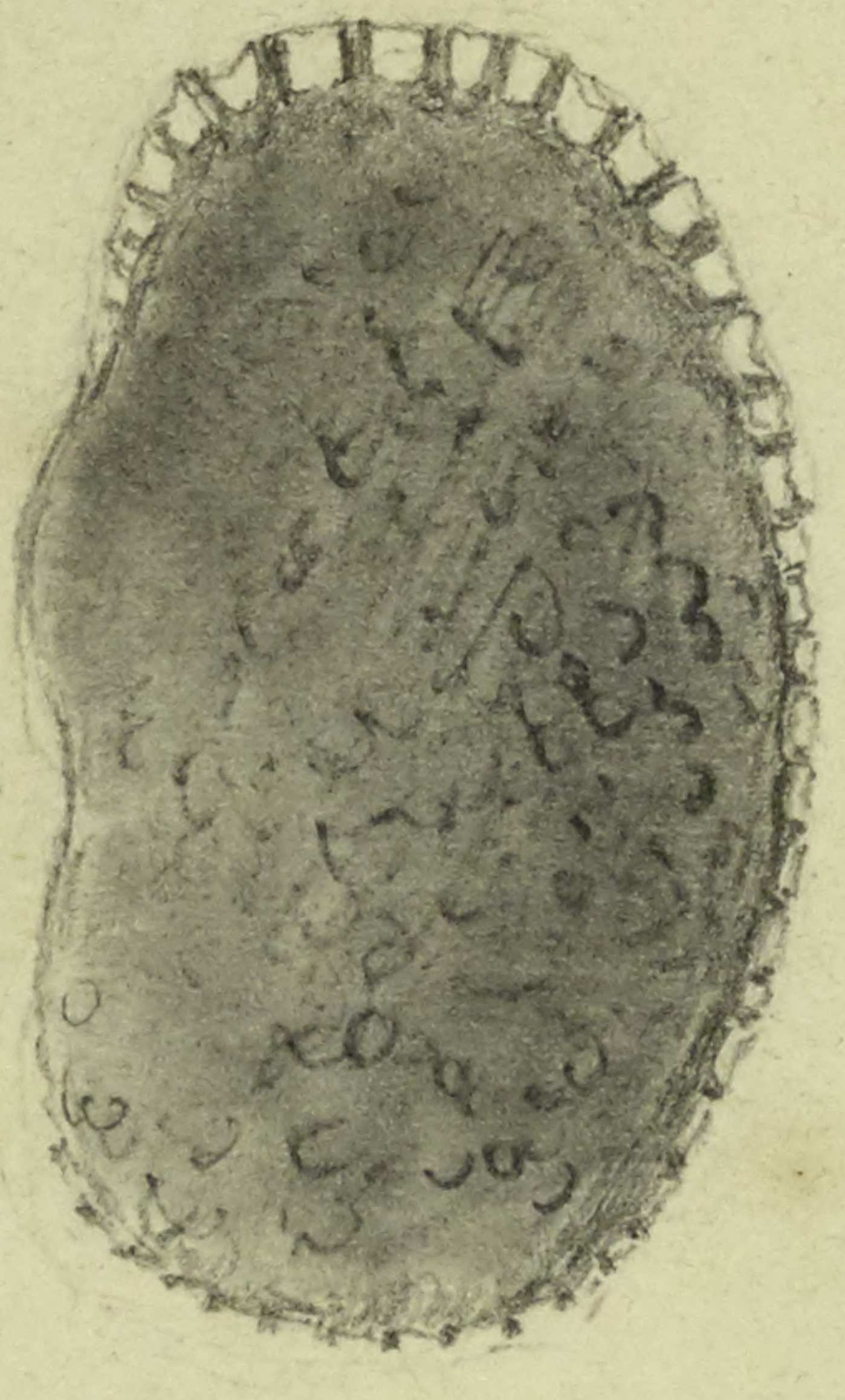
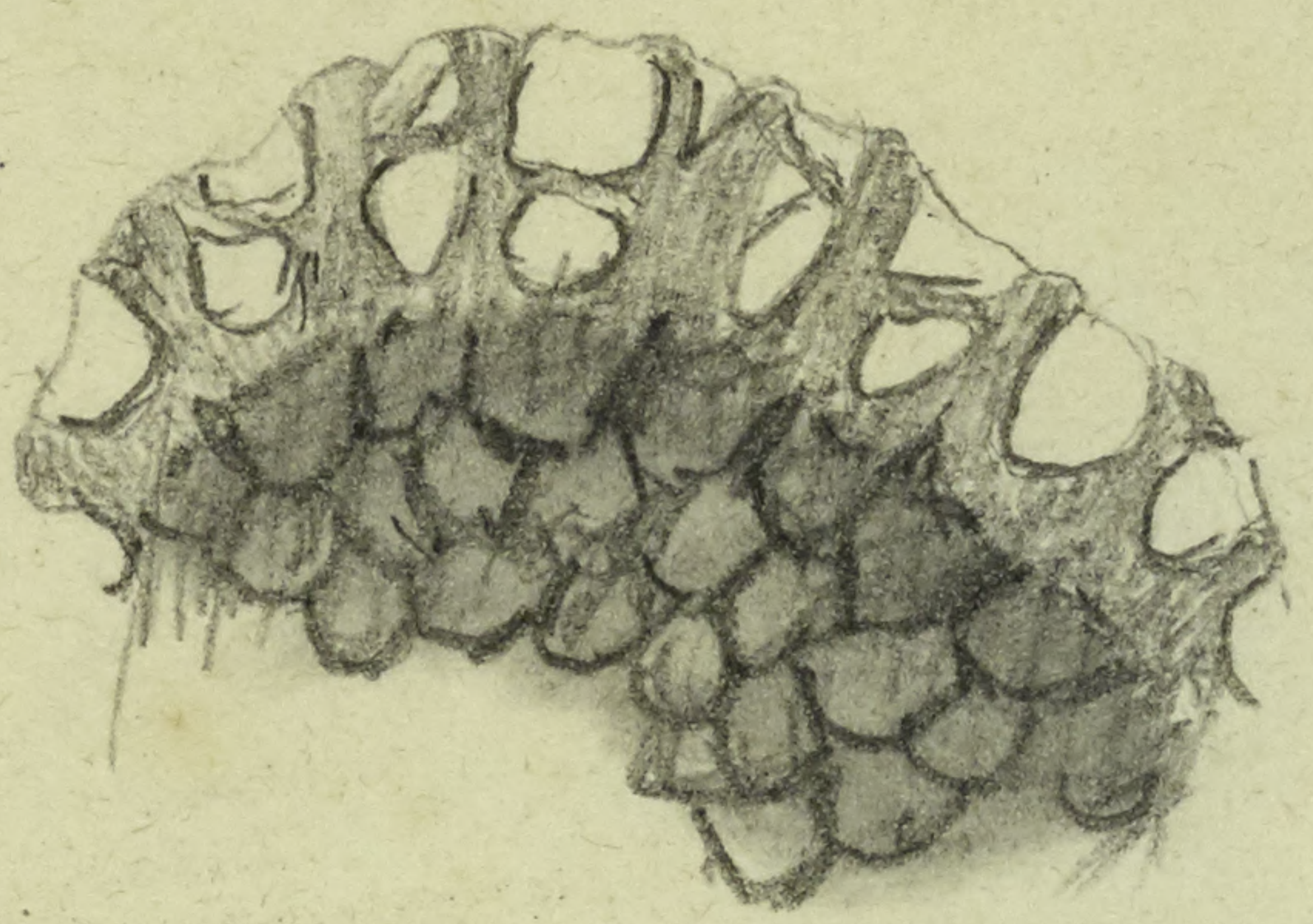
SHOUT
SHARE
IT

Sept 13 1864

Fayetteville Ark

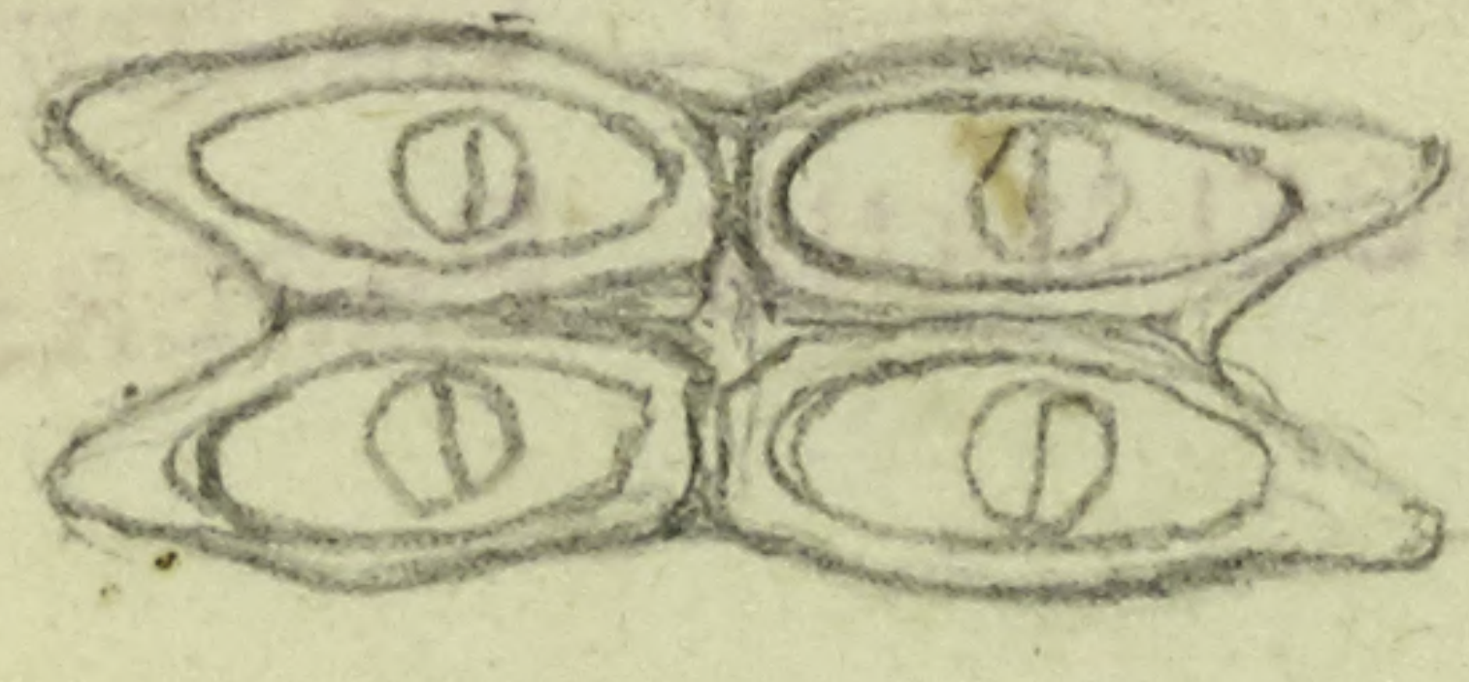
x60

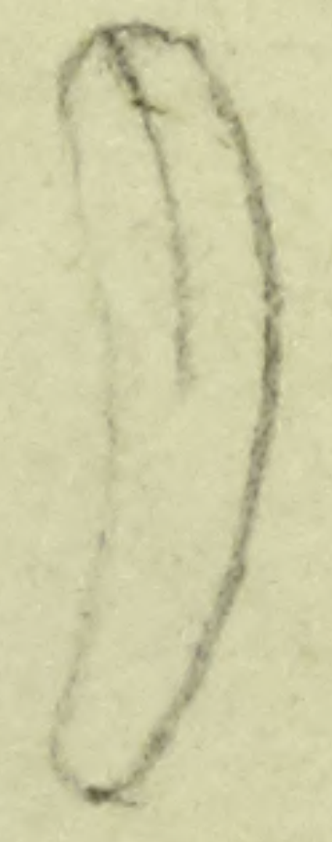




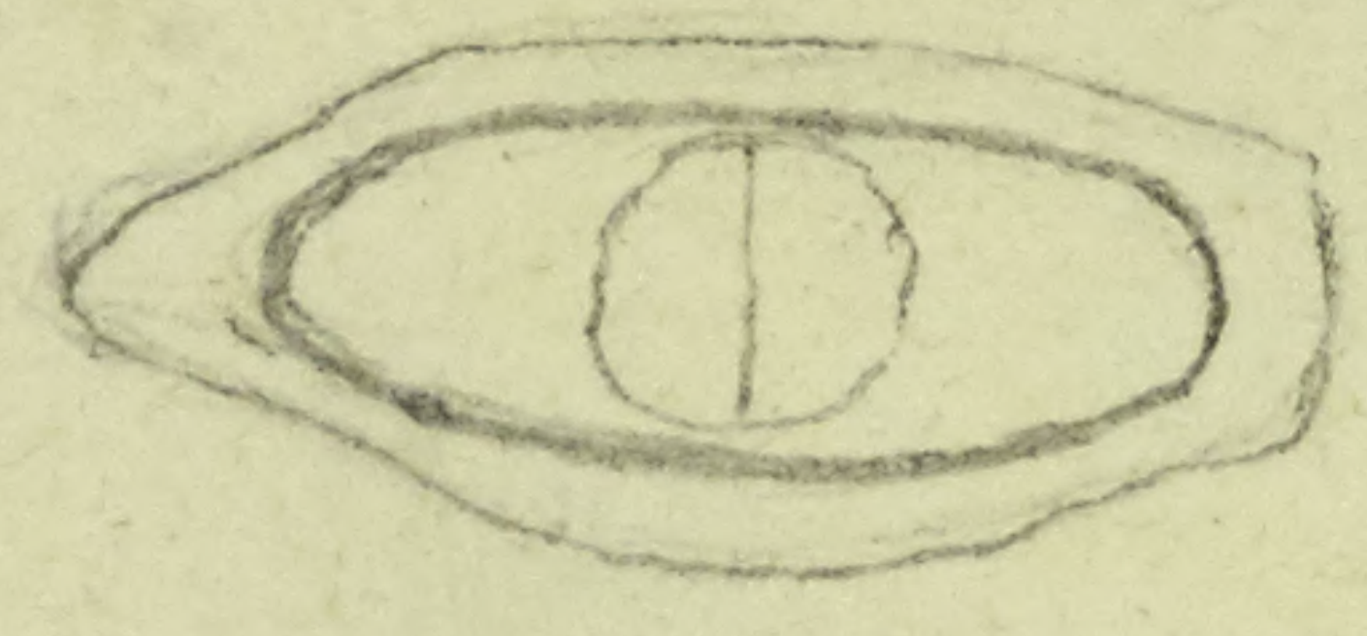
x150

x30 sect





embryo x30



x60

847

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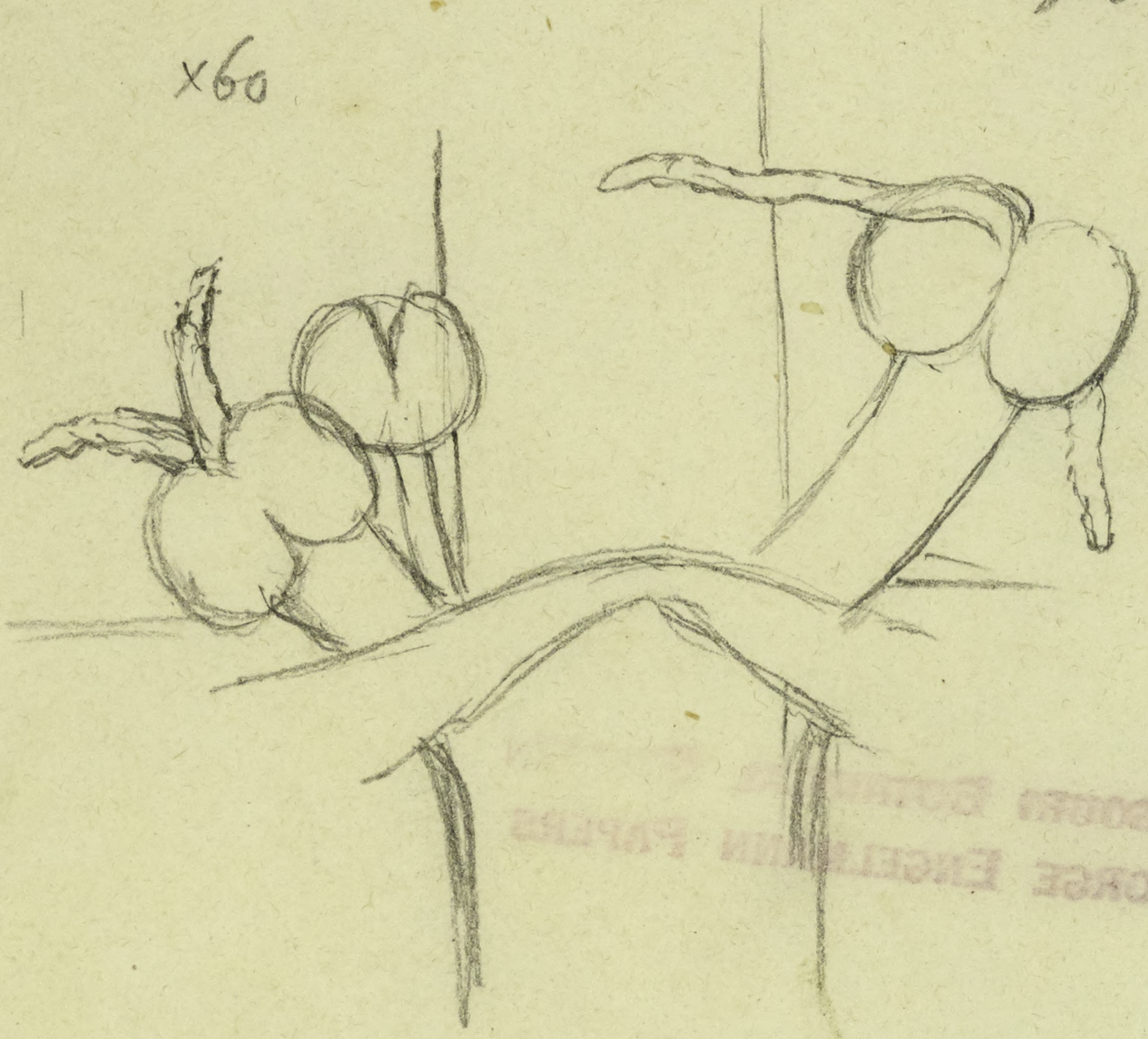
ALEX. LEITCH,
APOTHECARY & PHARMACEUTIST,
Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

Callitriche Austini   Jan 20 1865

N Jersey, Nov. 1864 Austin

848

x60



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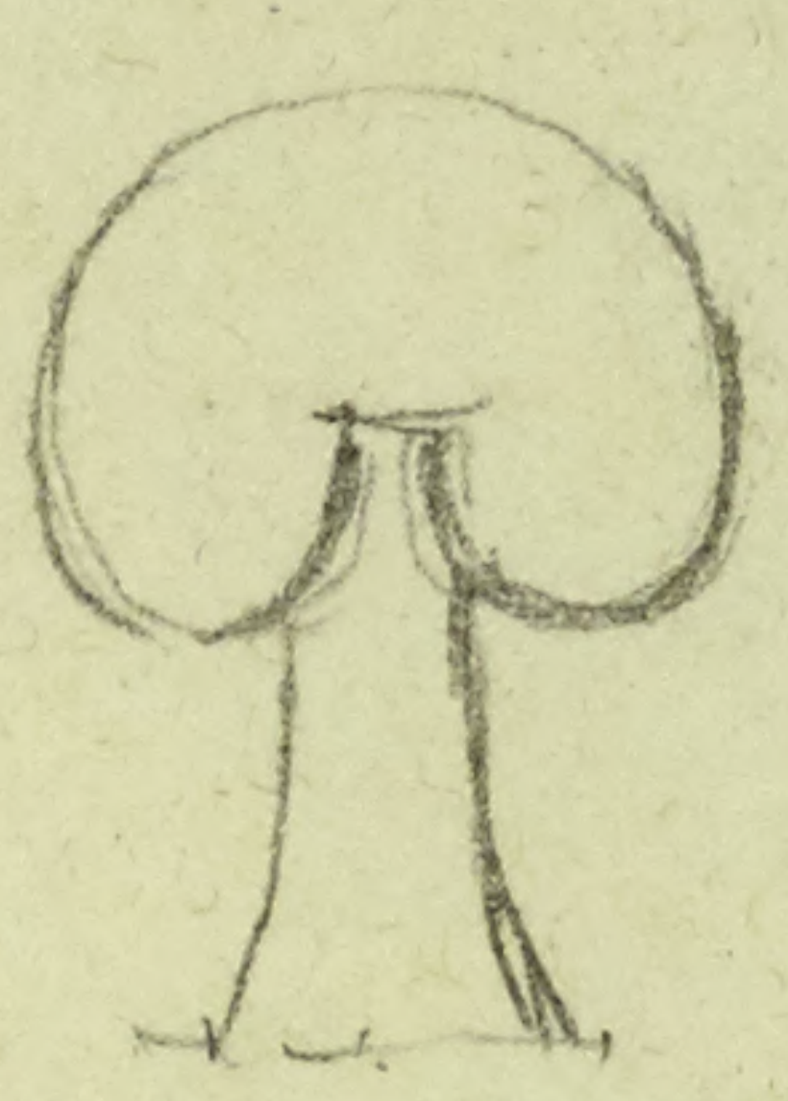
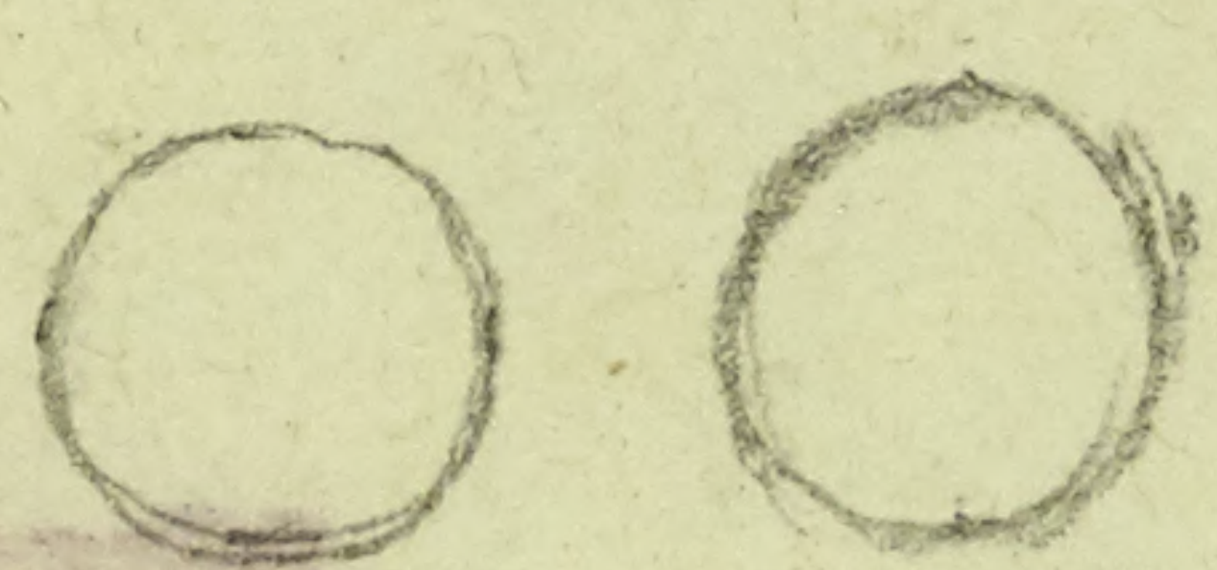


anther before opening



$\frac{7}{415}$ = 0.017 mm

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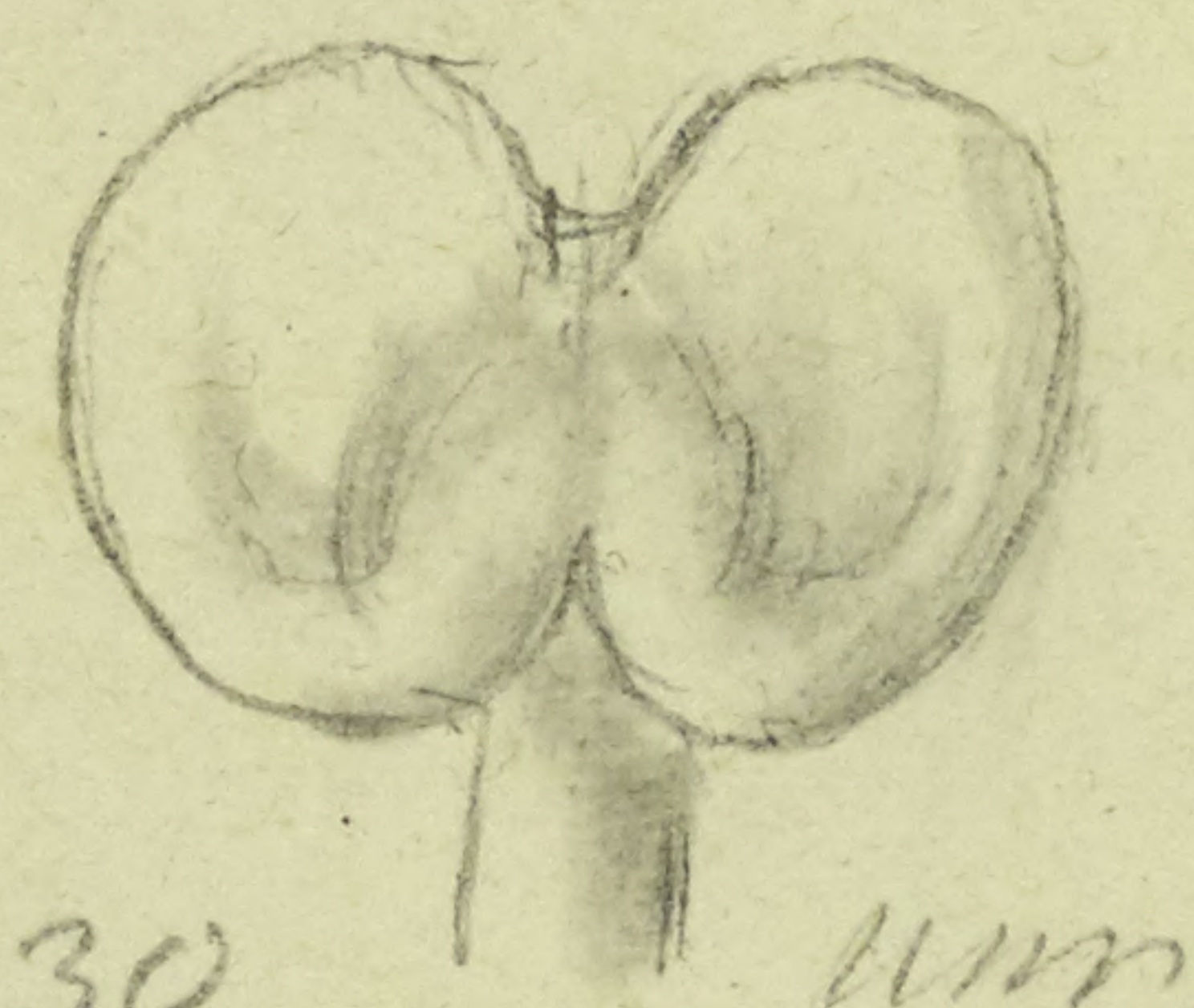
143. Callitriche

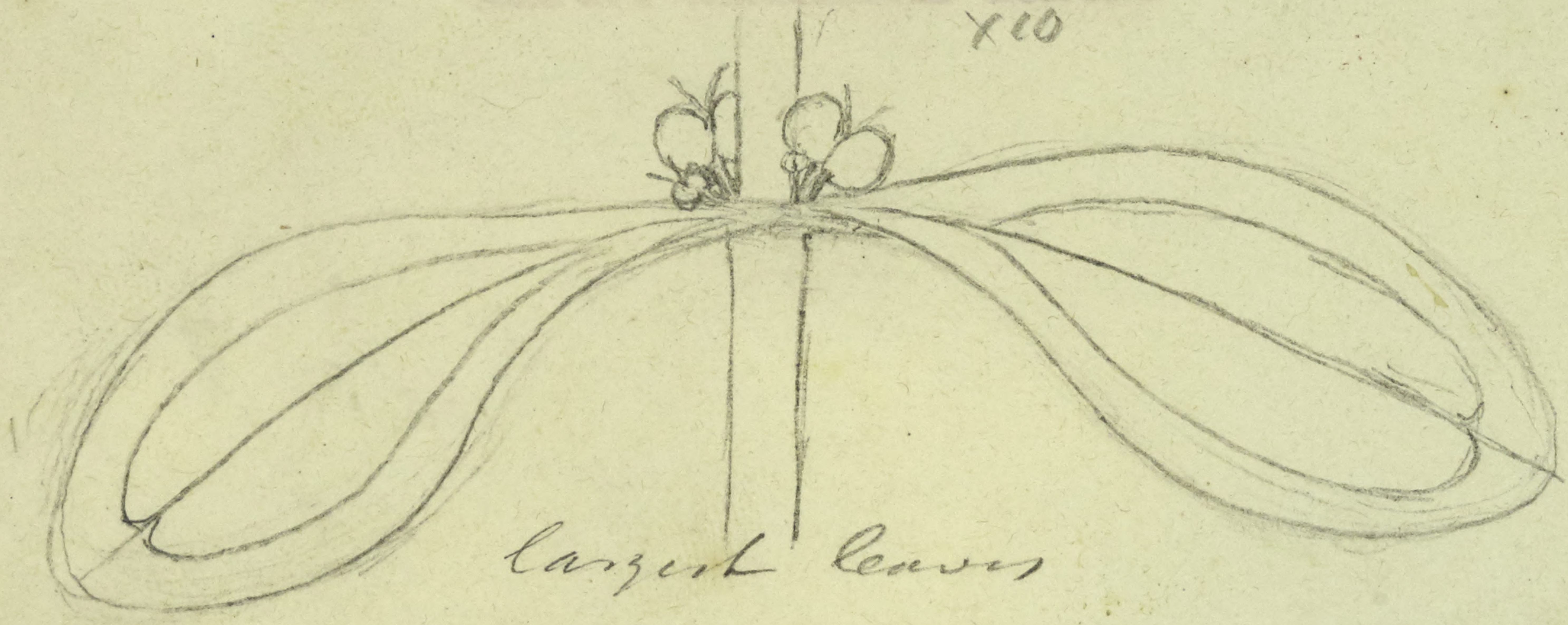
Sept 15 1864

Herb Gray

wartenberg, near Tantoyuca
prov Huasteca, Mex
L. C. Ervendberg 1858


×30
unripe fruit

849


×10
largest leaves

ribs very marked, tissue of leaf thin

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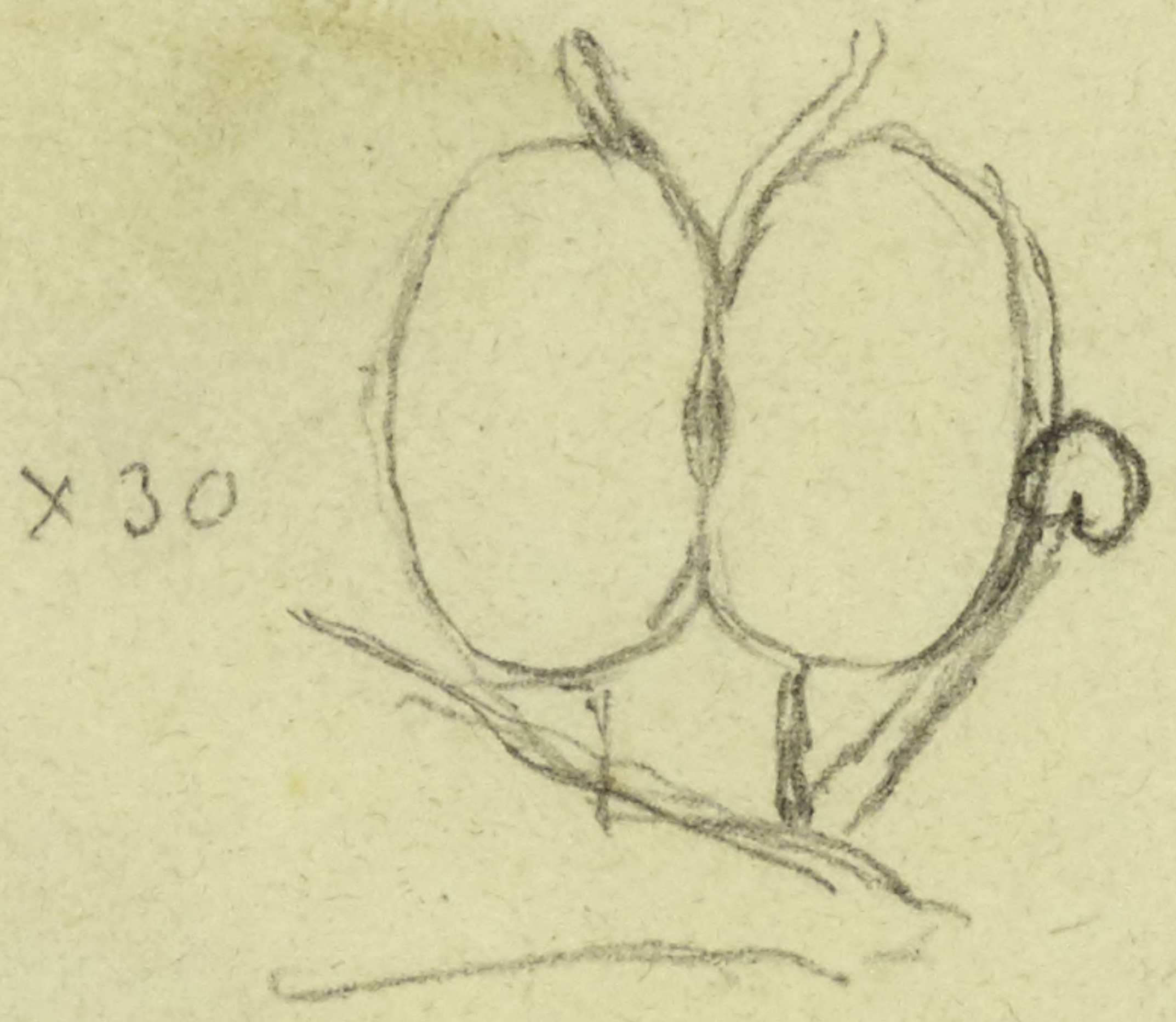
Callitriche

Sept 14 1864

Bahia in humidis, Salzmann
(mix'd with Micranthemum
orbiculatum)
ex Herb H.B. Missouri (Bernhardi



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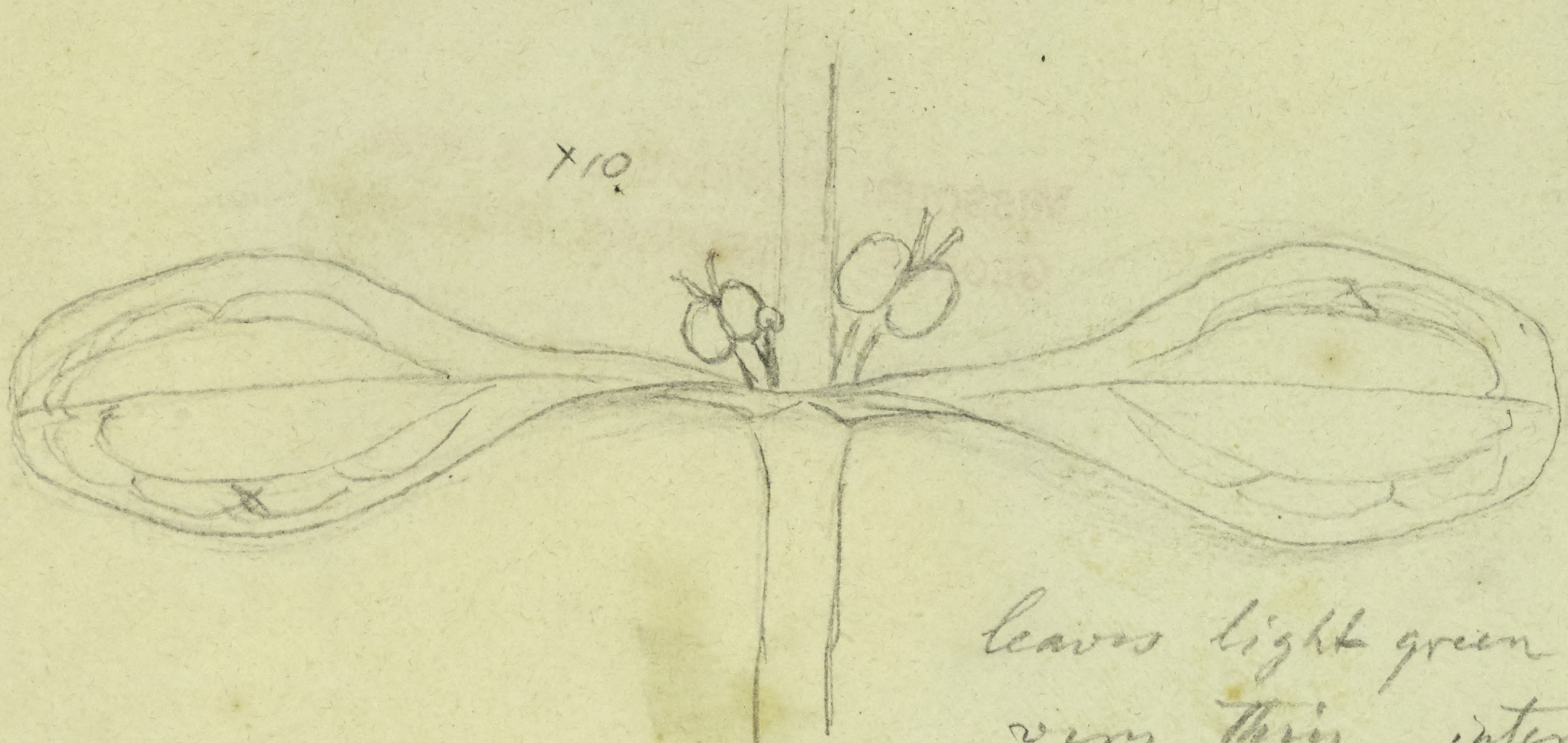

leaves light green
very thin, internodes
Longer or as long as leaves

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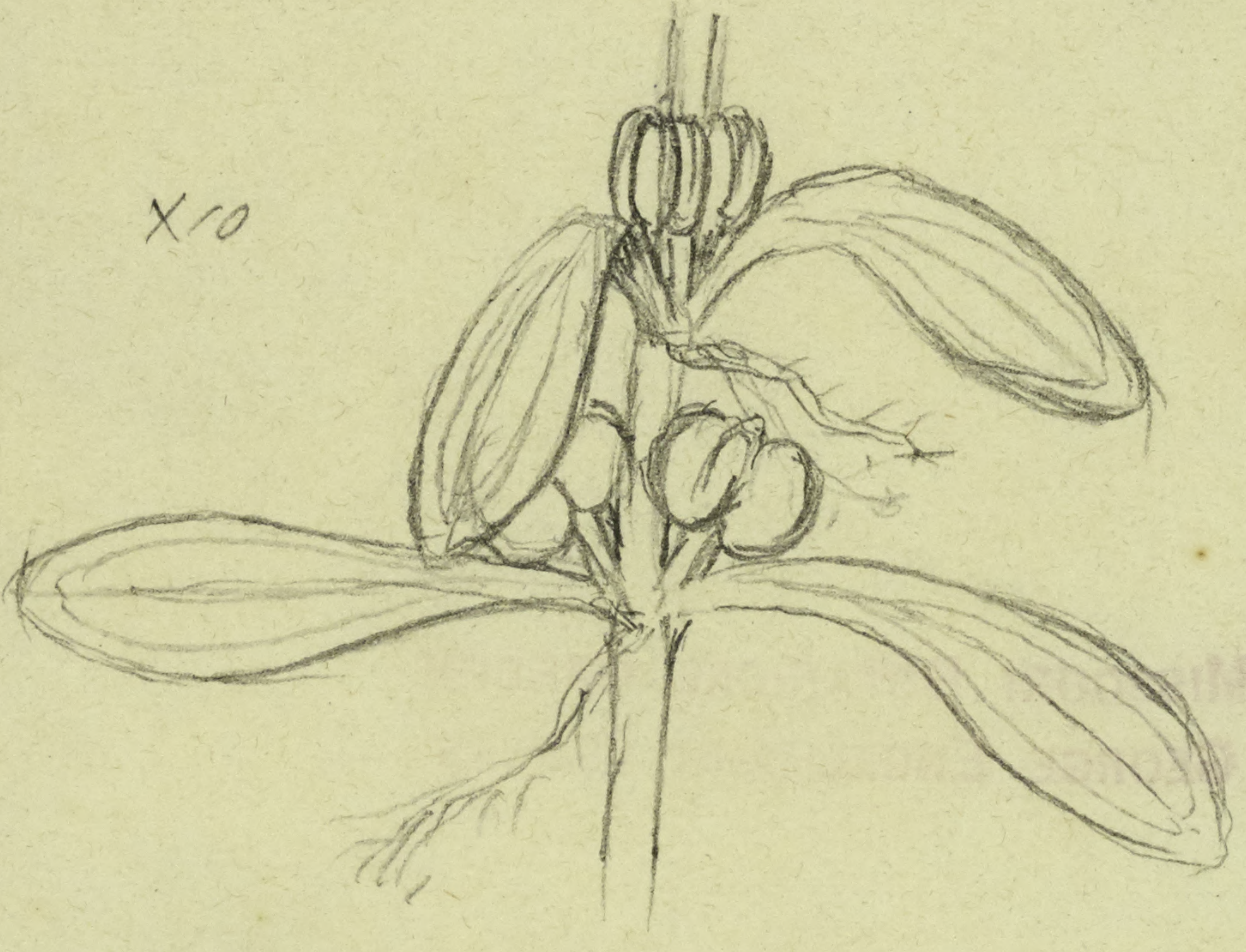
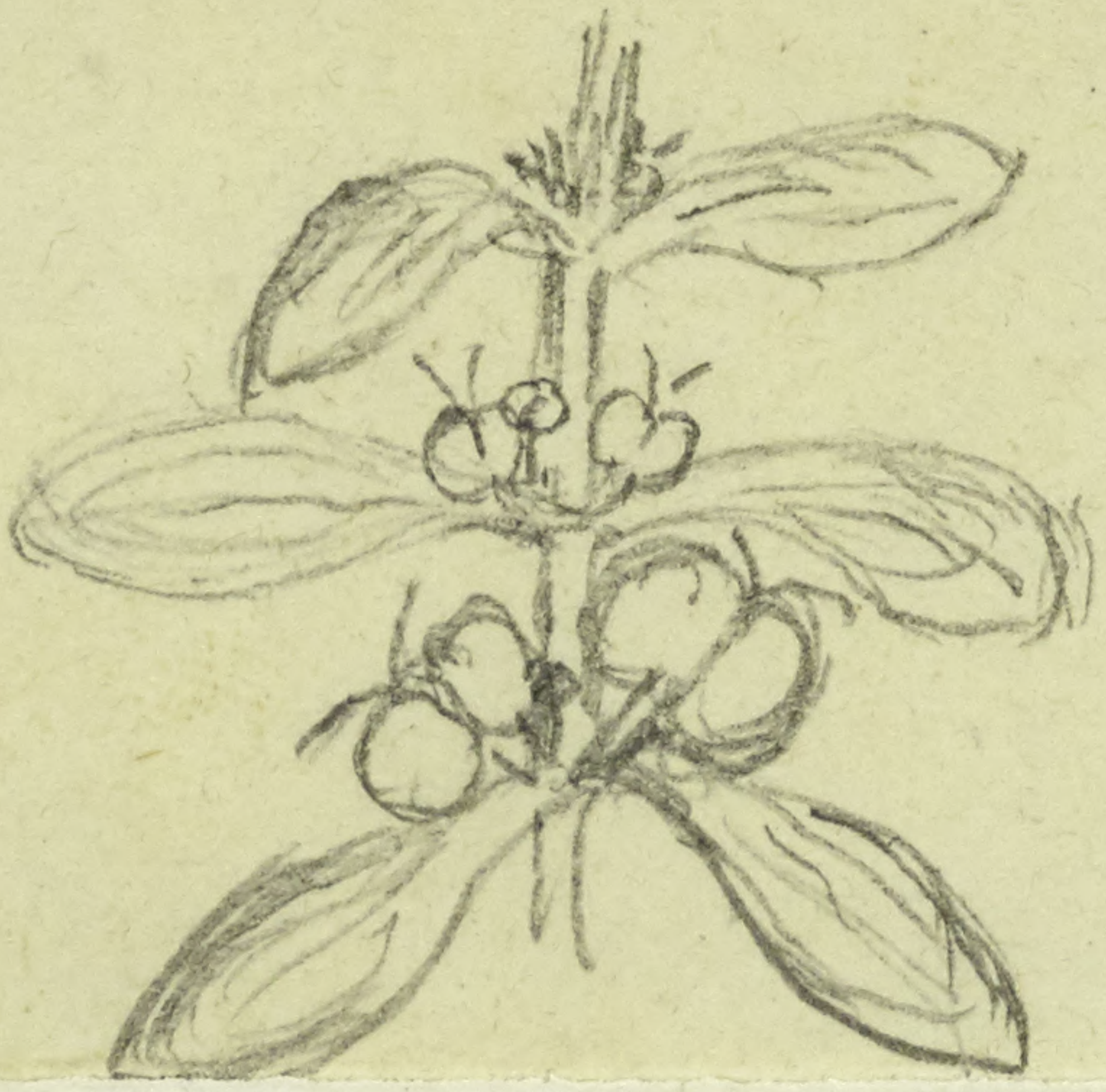
Callitriche Sept 13 1864

Fayetteville Ark. Engelm



leaves thick
no secondary ribs
visible



851

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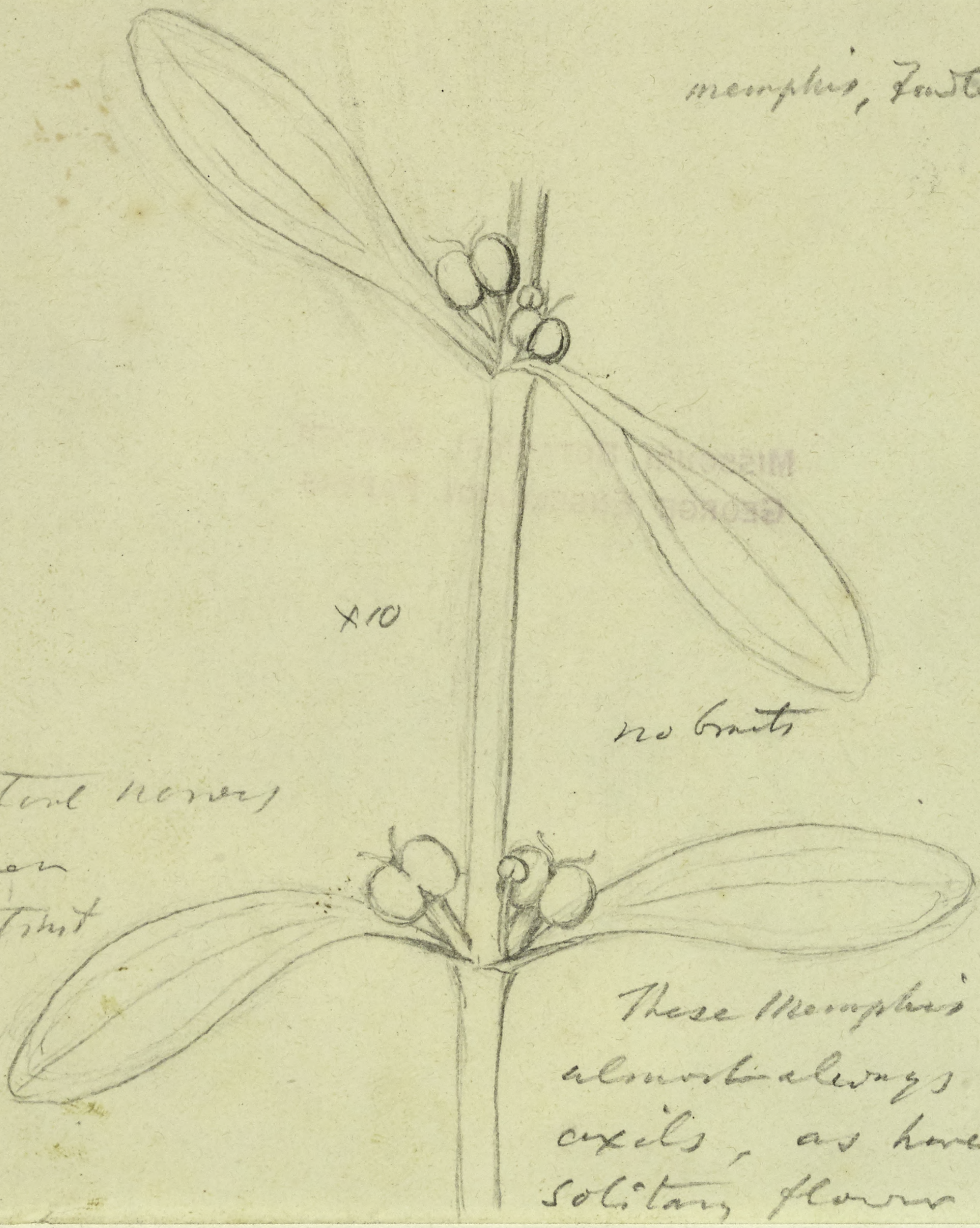
Sept 12 '64

memphis, Fowler

852



×10

no bracts

lateral nerves often indistinct

×), one male and two female ones

These Memphis specimens have almost always 3 flowers ×) in both axils, as here figured, the solitary flower with longer pedicel

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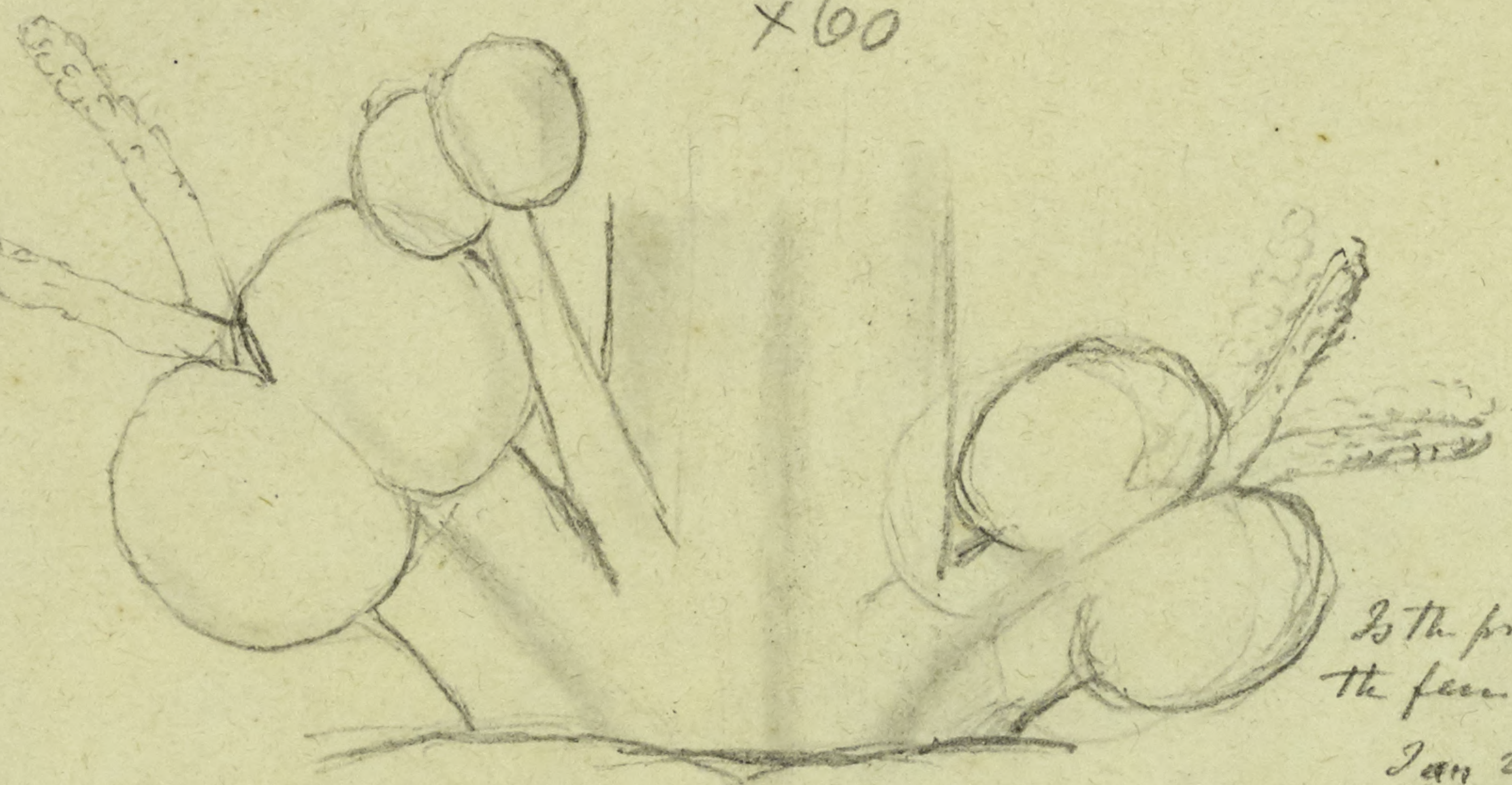
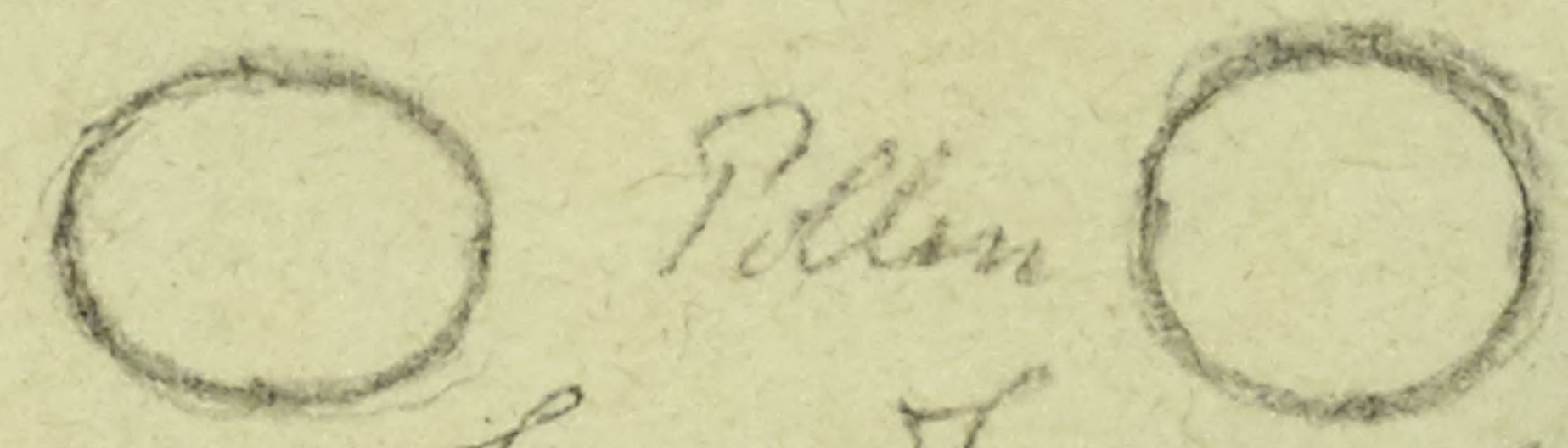
Callitriche Engelmanniana Sept 12 1864

Memphis, Bradley





broadly oval or nearly globose

$\frac{8}{415}$ mm in longest diam = 0.020 mm

Is the proportion of the fem. flowers correct ??
Jan 20 1865

Mostly with peduncles as long or a little longer than fruit

Styles as long as ovary, shorter than fruit

853

The New Jersey form (a Austin Coy) is identical with the Memphis plant — leaves same size, only with 3 more distinct ribs, and internodes as long or longer than leaves. flowers arranged exactly in the same manner: in the opposite axils one single earlier female and two (male and female, the latter later) opposite.

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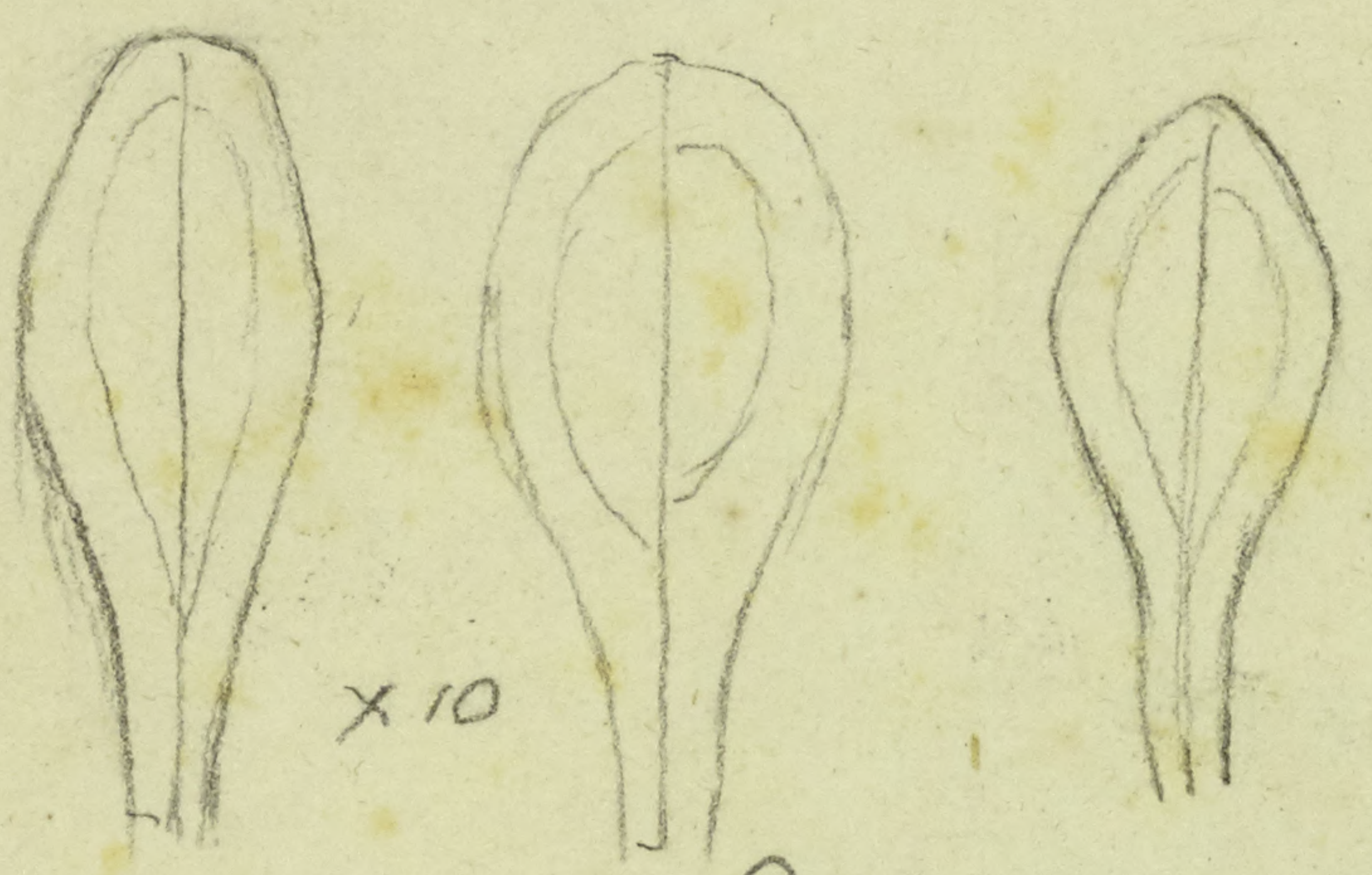
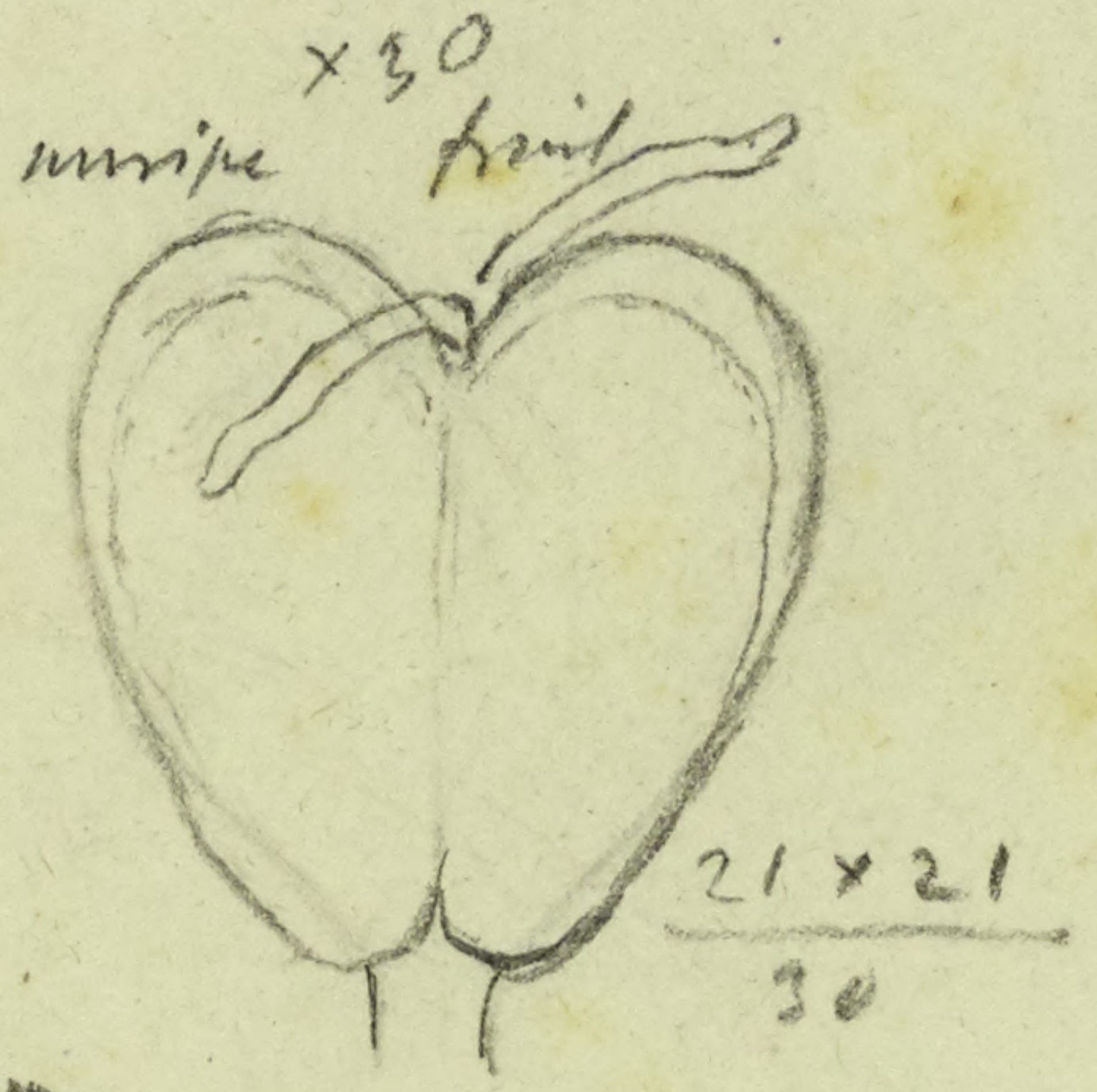
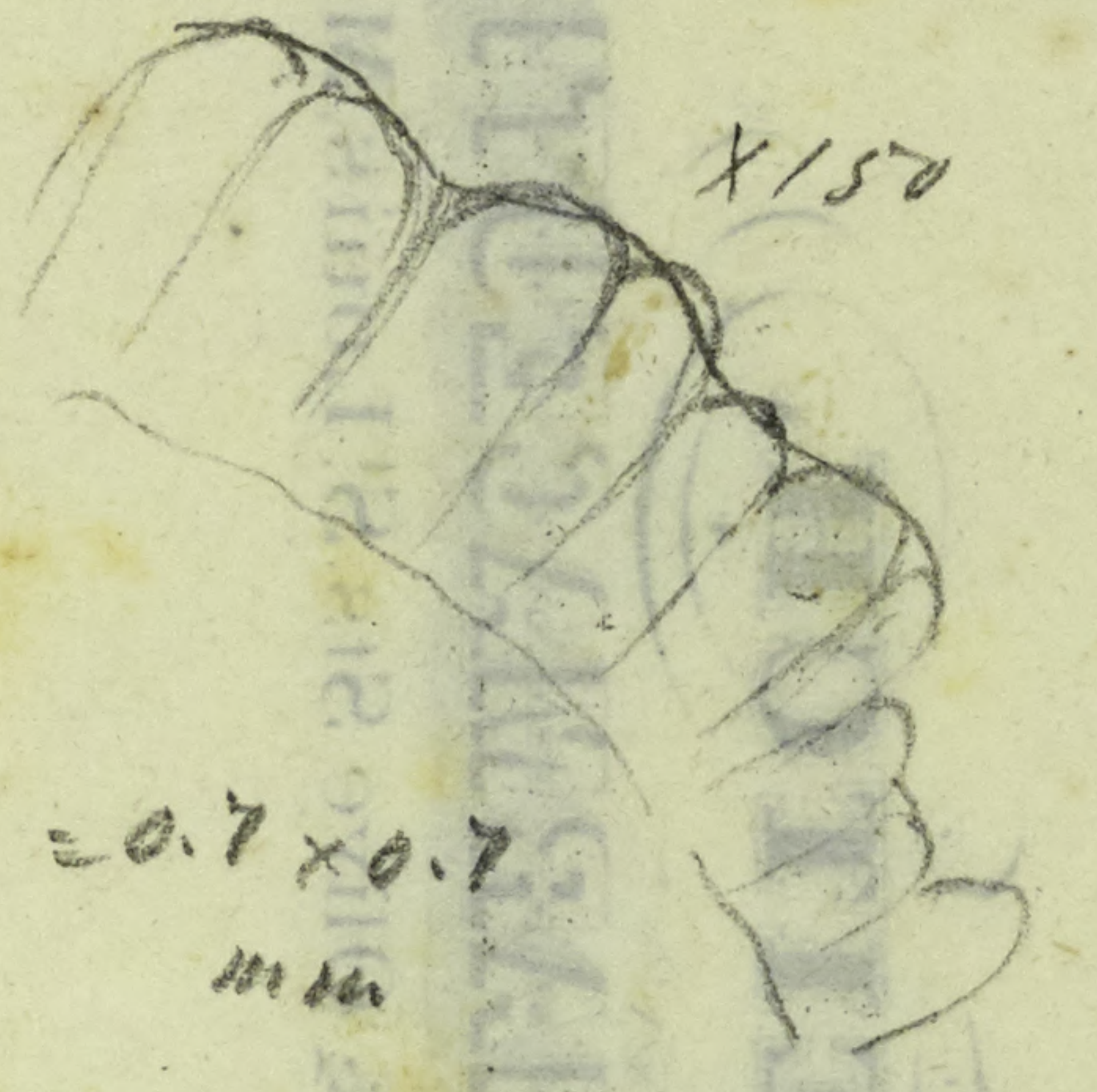
854

Call. Japonica n. sp. Dec 16 1864

Hakodadi, Japan Chs Wright — HG Gray

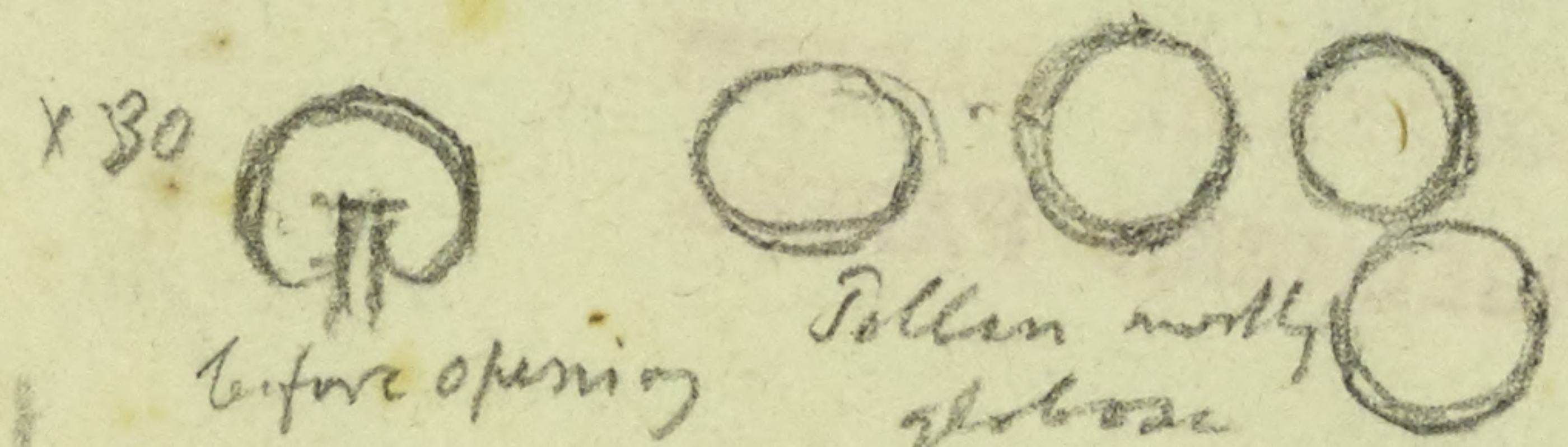



x 30
unripe
fruit



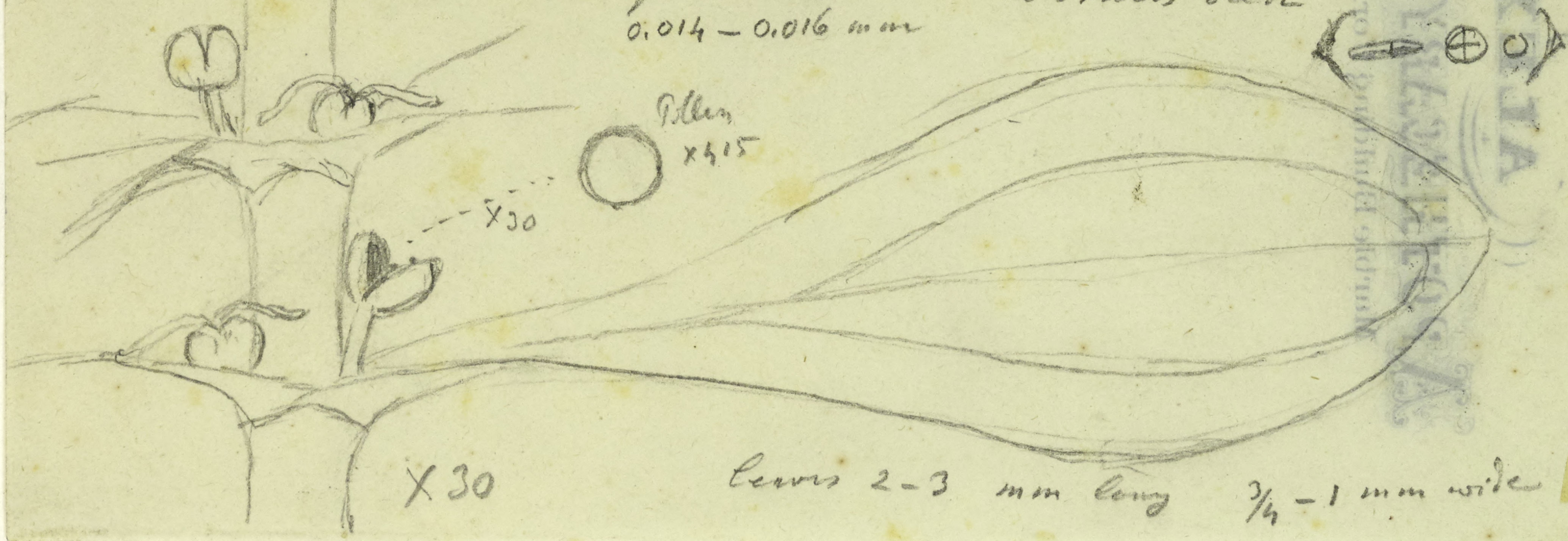
$\frac{21 \times 21}{30} = 0.7 \times 0.7$ mm

Pollen 0.011 – 0.013 – 0.015 mm


x 30
before opening

Pollen mostly globose 0.014 – 0.016 mm

no crystals discovered in parenchyma
no bracts seen


Pollen x 415
x 30
X 30

Leaves 2–3 mm long ¾–1 mm wide

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854A

then should the generation of cells, from the very plasma that they are made of, be called spontaneous generation? No; this question is to be decided by facts and not by theories. And we proceed to adduce some facts in favor of what has been called free cell development. We quote first from Vogel: "According to Schwan, development is always dependent on a formation of cells in an amorphous cytoblastema." We need not quote what he says of the process of this formation. He states the fact and that is enough for us. He goes on to say that, from these cells all organized products are formed. Again he says, "a very accurate set of experiments recently submitted by Dr. Helbert to our Physiological Institute, gave a singularly striking proof of this tendency. Fresh plasma taken from beneath an ordinary blister plaster exhibited no corpuscles of any kind. After standing in a glass for five or six hours, minute corpuscles were formed exactly analogous to those which appear in plasma when the formation of pus commences. Repeated experiments invariably gave the same results." Here observation first showed the amorphous fluid and afterwards the formation of incipient pus corpuscle. According to Acherson, whenever fat and albumen are mixed and shaken together, cells result. We quote from Kolliker, page 41: "Whenever fluid fat and fluid albumen are shaken together, the fat globules which are always formed, become surrounded by an albuminous coat." If fat and albumen outside of the body can form vesicles or cells (and this is a fact) it requires no great stretch of credulity to believe that cells can be formed in a freshly exuded blastema in immediate contact with the living organs.

We quote again from Kolliker, page 43: "With regard to the development of cells, we have to distinguish between their free origin and their production by the intermediation of other cells. In the former case the cells are developrd independently of others in a plastic fluid. The cytoblastema of Schleiden, containing chiefly protein, fat and salts in solution; in the other or in cell multiplication the existent cells produce the so-called secondary or daughter cells within themselves, or multiply by division—endogenous cell formation, and fissiparous cell formation.

We see that Kolliker recognizes the fact that cells are multiplied by fissiporous generation, that which is almost exclusively contended for by Virchow, yet as a fact contends that they

Callitriche Japonica n. sp.
Hakodadi, Japan
Chs Wright — U.S. North Pacific
Expl. Exped. 1853–1856.
(Ex Herb Gray)

31

are multiplied or formed in two other modes, namely, by formation endogenously and in an amorphous blastema. The chyle and lymph corpuscles, are evidently not formed by previous cells. They belong to the domain of free cell development, unless it be contended that even digestion does not break down the cells of the food which is digested. We quote again from Kolliker, page 49: "Free cell formation is exceedingly frequent in pathological productions; and the cells in pus, and in exudations of all kinds arise in this manner, in fact all pathological cell formation comes under this head." These authors (Vogel and Kolliker) state the fact of free cell development in an amorphous blastema. No theory can stand against an observed fact—cells are developed from preëxistent cells by fissiparous generation or proliferation as Virchow says, but is this the only mode of their generation? Vogel and Kolliker say that it is a fact of observation, that they arise in an amorphous blastema also; and when we consider that the cells themselves are formed of an organized blastema, the fact of what is called free cell formation requires no great stretch of credulity to be admitted. Let us say again that this arising of cells in an amorphous blastema does not imply even *free,* much less spontaneous cell development; for the invisible germs of cells—the products of previous cells may exist in the blastema. The question between Virchow and the authors we have cited is this: can new cells be developed in a microscopically amorphous blastema, and we contend, that so far, facts decide the question in the affirmative. Let further investigations finally decide. We await them with a decided leaning to the blastemal theory as a part of the truth, admitting, of course, the facts of fissiparous and endogenous generation as amongst the modes of cell genesis. Even Virchow admits the endogenous generation in a limited extent; and that fibrous exudations may become organized without the intervention of cells; so that cells are not everything.

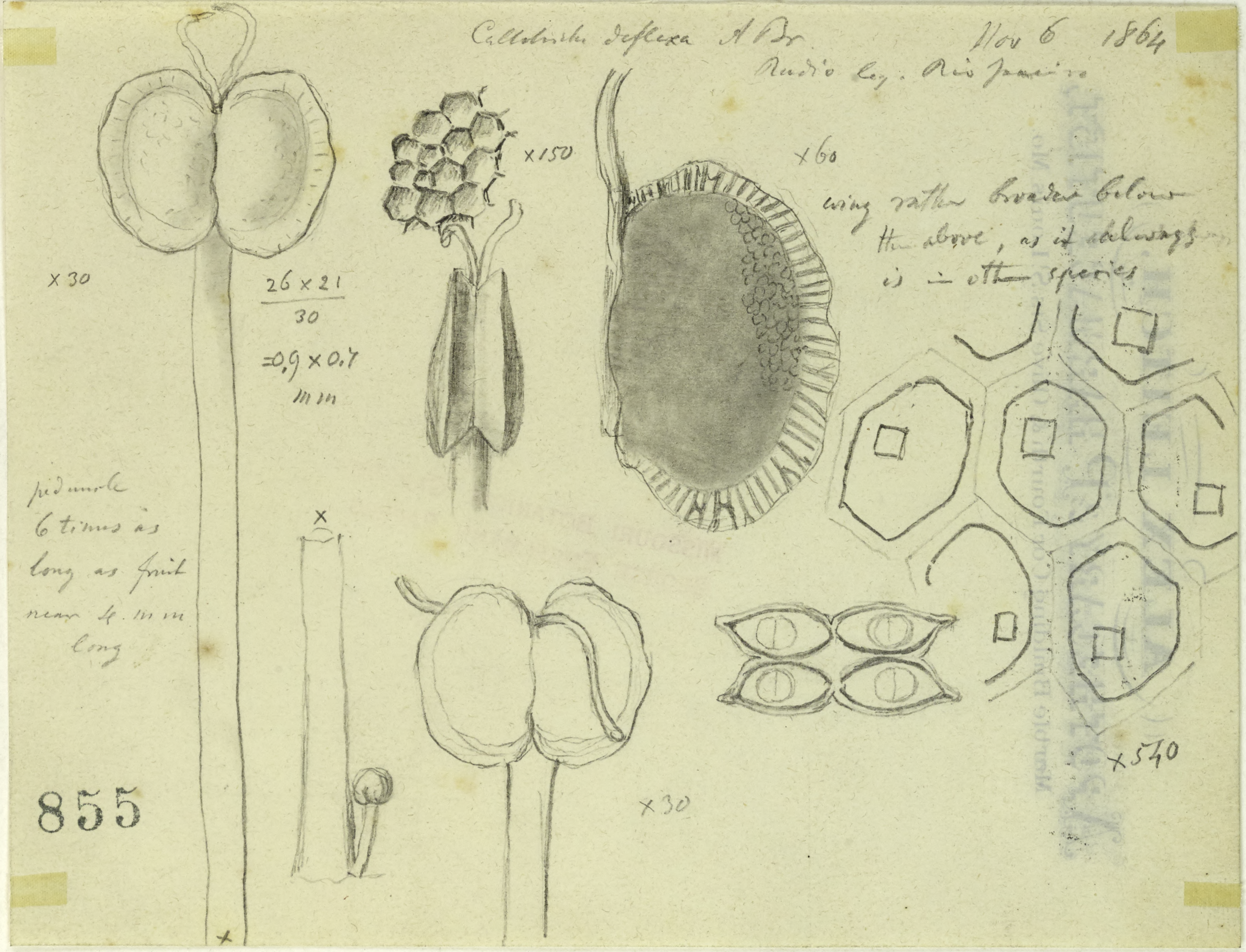
The theory of Mandl as recorded by Berard, is the prettiest of all the cell theories. It is as follows:

"Anterior to any formation there exists a liquid blastema, containing corpuscles, which Mr. Mandl calls *primitive corpuscles* —(which we noticed above as a blastema and nuclei).

"From this condition, the formation of tissues may take two different directions, from which will result:

Callitriche deflexa A Br Nov 6 1864

Rudio leg. Rio Janeiro



wing rather broader below than above, as it always is in other species

$\frac{26 \times 21}{30}$ = 0.9 × 0.7 mm

peduncle 6 times as long as fruit near 4. mm long

855

ALEX. LEITCH,
APOTHECARY & PHARMACEUTIST,
Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

855A

Additional Remarks on ATMOSPHERIC ELECTRICITY.

BY A. WISLIZENUS, M.D.

The delay in the publication of this volume enables me to add to my observations of atmospheric electricity in 1861, the result of my observations in 1862. The latter observations have been made in the same manner and by means of the same fine glass thread, which, after many thousand torsions, proves as good as ever. I present herewith in tabular form the general result of my observations in 1861 and 1862.

I. *Monthly mean of Positive Atmospheric Electricity in* 1861 *and* 1862, *at St. Louis, Mo., based upon daily observations at* 6, 9, 12, 3, 6 *and* 9 *o'clock, from morning till night.*

	Jan.	Feb.	Mar.	Ap'l.	May.	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean of Year.
1861*	16.5	12.1	9.8	8.8	7.8	4.0	3.7	3.4	3.0	7.1	10.0	14.3	8.4
1862	12.1	16.0	9.4	10.6	7.5	3.0	2.2	2.3	3.0	7.7	12.6	13.9	8.4

* This table of 1861 differs in some decimals from that published on page 66 and in Diagram No. 1. Having discovered some errors, I calculated all my observations once more, and give now the present as the corrected table.

II. *Monthly mean of Temperature and of Relative Humidity in* 1861 *and* 1862, *at St. Louis, Mo., based upon daily observations, cotemporaneous with those of Atmospheric Electricity.*

TEMPERATURE.

	Jan.	Feb.	Mar.	Ap'l.	May.	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean of Year.
1861	32.2	40.4	44.8	58.1	64.1	76.9	77.5	78.6	69.1	57.9	46.0	39.7	57.1°F.
1862	28.9	30.2	43.2	55.0	69.7	75.1	81.2	80.7	72.1	57.3	42.6	41.3	56.4°F.

RELATIVE HUMIDITY.

	Jan.	Feb.	Mar.	Ap'l.	May.	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean of Year.
1861	72.2	63.3	64.5	61.5	66.3	70.8	66.3	69.6	77.3	76.6	69.0	74.3	69.5
1862	85.3	73.9	70.8	67.0	57.3	67.0	66.8	64.3	74.2	67.2	69.5	74.6	69.8

III. *Yearly mean of Positive Electricity of Temperature, and of Relative Humidity of the Atmosphere, at the hours of* 6, 9, 12, 3, 6 *and* 9, *from morning till night, based upon daily observations at these hours through the years* 1861 *and* 1862, *at St. Louis, Mo.*

ELECTRICITY.

	At 6 A.M.	At 9 A.M.	At 12 M.	At 3 P.M.	At 6 P.M.	At 9 P.M.
1861	8.6	10.0	9.2	7.9	8.7	6.9
1862	8.9	10.0	9.1	7.3	8.1	6.8

TEMPERATURE.

	At 6 A.M.	At 9 A.M.	At 12 M.	At 3 P.M.	At 6 P.M.	At 9 P.M.
1861	48.9°F.	54.9	61.6	63.6	59.3	54.3
1862	48.9	55.0	60.9	62.3	58.0	53.6

RELATIVE HUMIDITY.

	At 6 A.M.	At 9 A.M.	At 12 M.	At 3 P.M.	At 6 P.M.	At 9 P.M.
1861	86.4	71.3	60.3	57.2	65.1	77.3
1862	5.3	70.6	60.0	57.5	67.6	78.0

Call. deflexa A. Braun mss
ap. Hegelmaier Monogr. 1864
(excl. syn.) pag. 58

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IV. *Direction of Winds and number of Thunderstorms in* '61 & '62.

1861.	E.	N.	N.E.	S.W.	N.W.	S.	W.	S.E.	Prevailing Winds.	Thunder-storms.
January......	11	3	12	22	38	18	28	61	S.E.	 0
February	4	2	2	35	24	19	41	60	S.E.	 2
March..........	12	11	10	23	30	19	42	40	W. & S.E....	 3
April	16	10	9	26	21	35	34	26	S. & W.......	 2
May	26	10	23	21	8	13	49	35	W. & S.E. ...	 5
June	12	21	22	20	25	26	8	41	S.E.	 7
July	3	31	14	21	26	46	15	29	S.	 3
August	18	24	58	17	11	18	3	37	N.E.	 5
September...	6	14	18	26	30	13	21	52	S.E. & N.W.	 3
October	12	9	5	21	30	33	30	46	S.E. & S.....	 1
November....	7	15	8	22	27	20	36	44	S.E. & W....	 1
December ...	9	19	9	25	23	33	17	51	S.E. & S.....	 0
	136	169	190	279	293	293	324	522	S.E.	 32

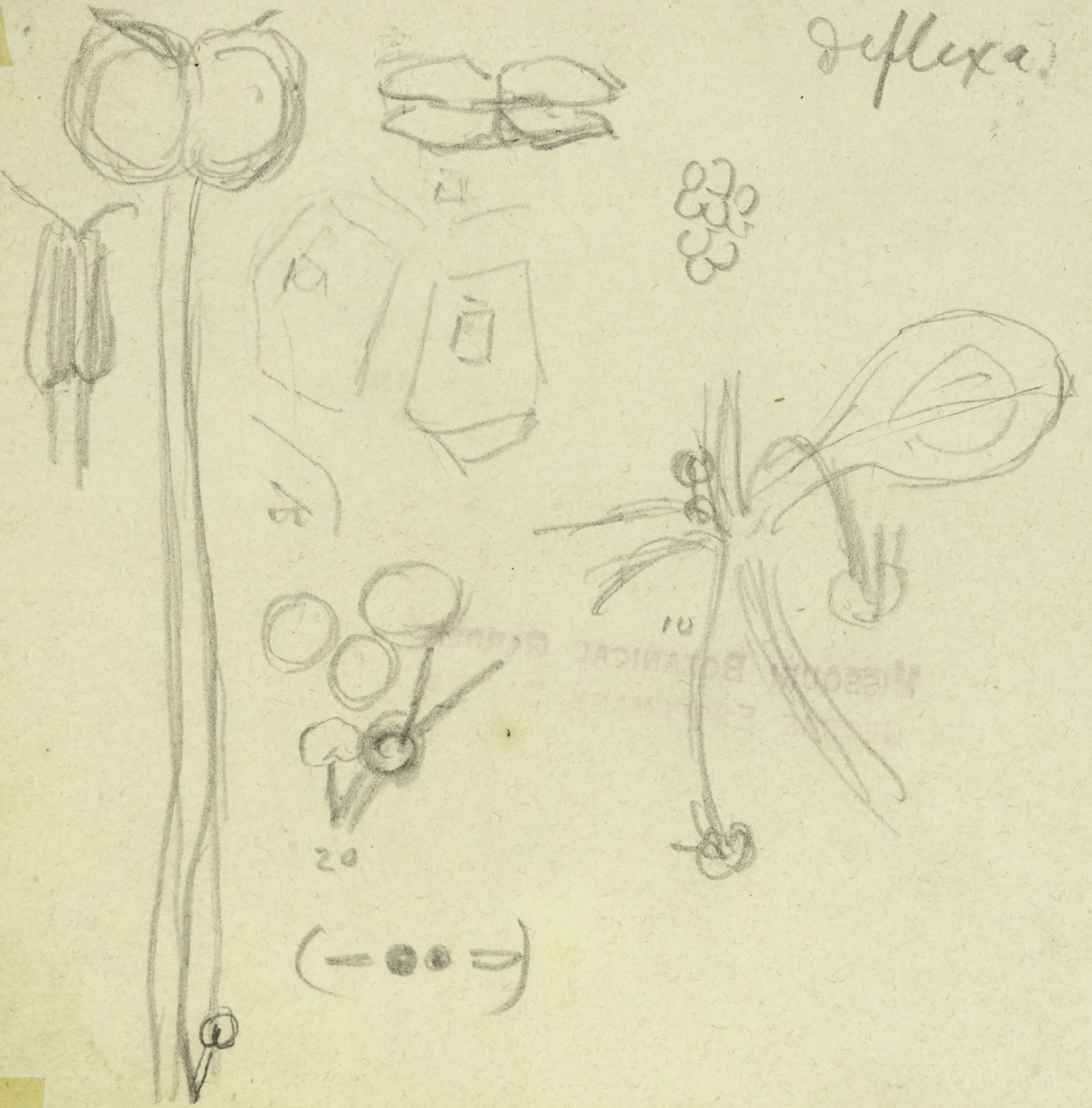
1862.	E.	S.W.	N.	N.E.	W.	S.	N.W.	S.E.	Prevailing Winds.	Th. st's.
Jan.......	19	6	19	23	29	3	38	51	S.E.	1
Feb.......	14	9	18	16	22	7	39	43	S.E. & N.W.	0
March ...	9	14	3	15	59	10	34	43	W., S.E. & N.W....	4
April	12	13	18	31	18	11	34	47	S.E., N.W. & N.E..	6
May......	12	18	14	38	18	30	14	44	S.E. & N.E...........	5
June	3	29	24	16	8	36	26	23	S., S.W., N.W., N. & S.E................	6
July......	5	25	17	7	2	24	31	77	S.E.	10
August..	6	16	16	45	5	22	28	48	S.E. & N.E...........	7
Sept.	16	10	21	18	11	18	13	72	S.E.	6
Oct.......	1	15	19	4	10	40	47	46	N.W. & S.E.	1
Nov.......	14	19	21	12	43	19	34	18	W. & N.W.	0
Dec.......	11	17	21	5	34	45	13	38	S., S.E. & W.	4
	112	191	211	230	259	265	351	550	S.E.	50

V. *Positive or Negative Electricity in the Observations of* '61 & '62.

	Positive Electricity.		Negative Electricity.		No Electricity, or 0.		Highest Positive Electricity.	
	1861.	1862.	1861.	1862.	1861.	1862.	1861.	1862.
Jan.......	179	179	3	5		2	40°	40°
Feb.......	162	166	6	2			34	33
March ...	168	179	15	8			30	48
April	157	157	12	22	1	1	33	52
May......	171	180	17	5	1	3	25	32
June	162	143	5	2	8	20	16	21
July......	183	153	3	8	1	24	14	11
August..	176	143	5	4	6	40	15	19
Sept......	169	117	1	1	10	61	18	23
Oct.......	162	143	4	3	20	41	33	35
Nov... ...	172	157	2	7	6	16	42	42
Dec... ...	175	166	5	0	6	17	37	35
	2046	1883	78	67	59	225	42°	52°

deflexa

856



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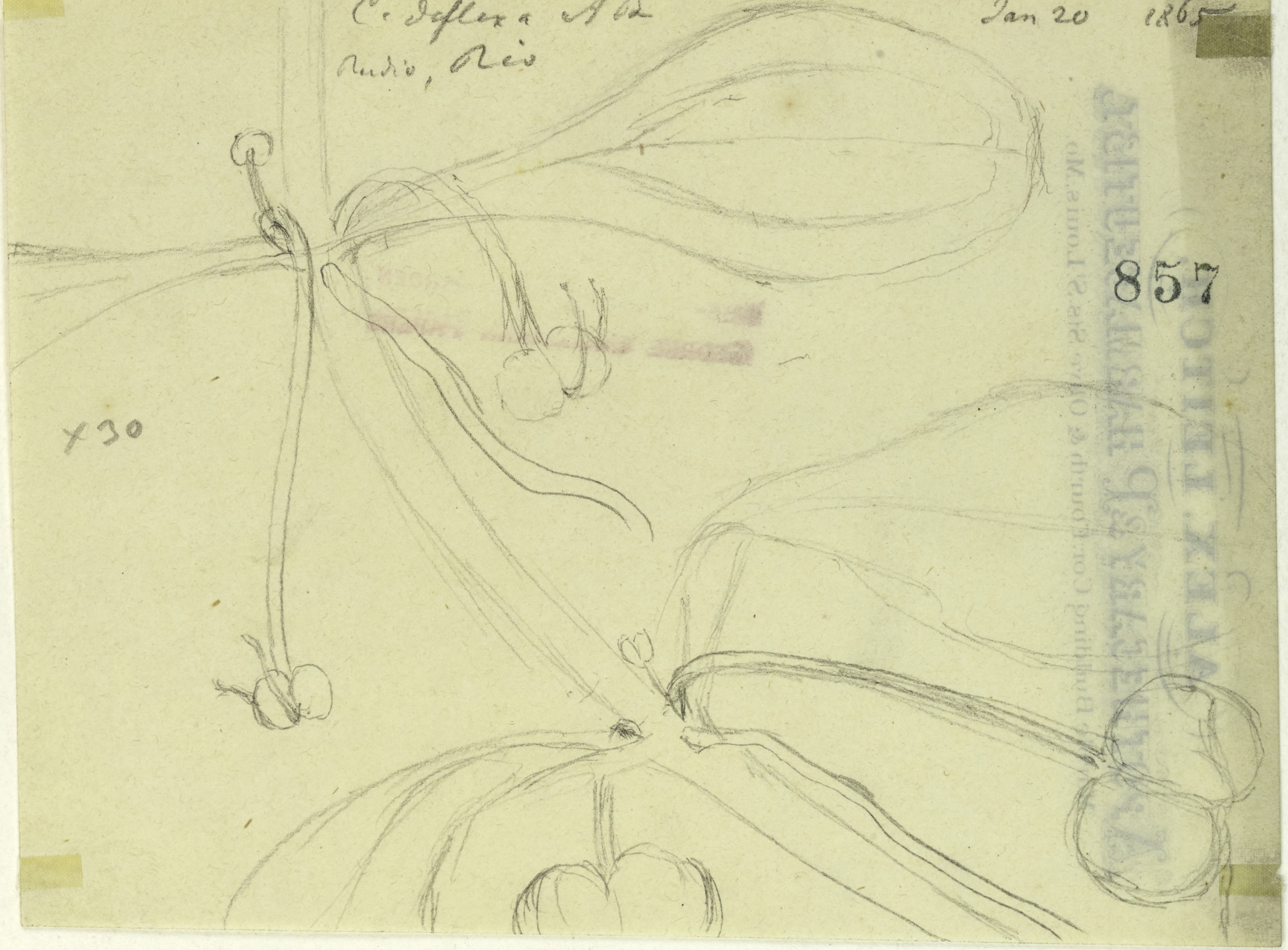
Leitch & Corlies

DRUGGISTS

South-west Corner Fifth and Market Streets

C. deflexa A.DC.   Jan 20 1865

Rudio, Rio



x30

857

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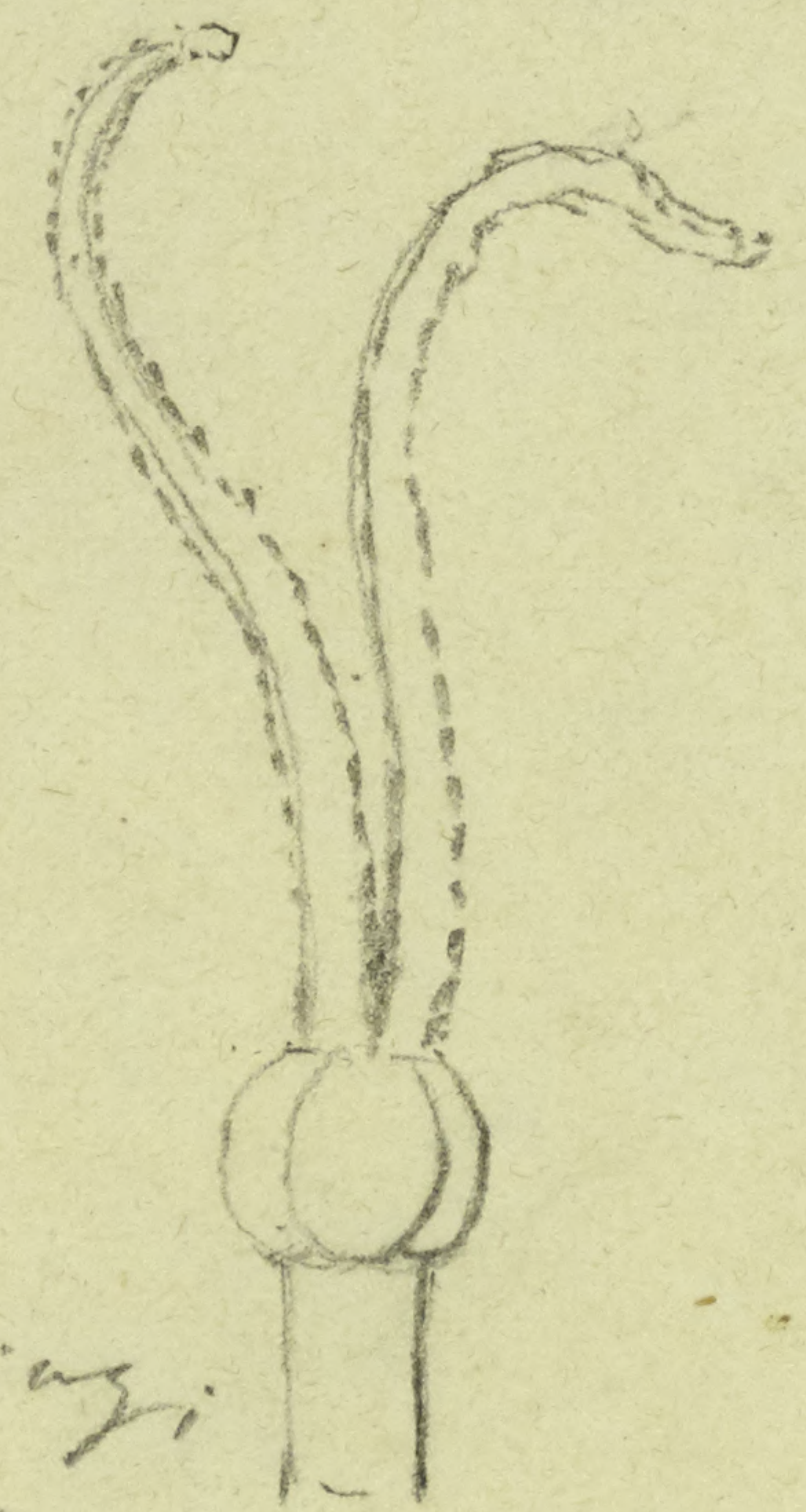
GARDEN,
GEORGE ENGELMANN PAPERS

Call. deflexa A. Braun

Jan 20 1865

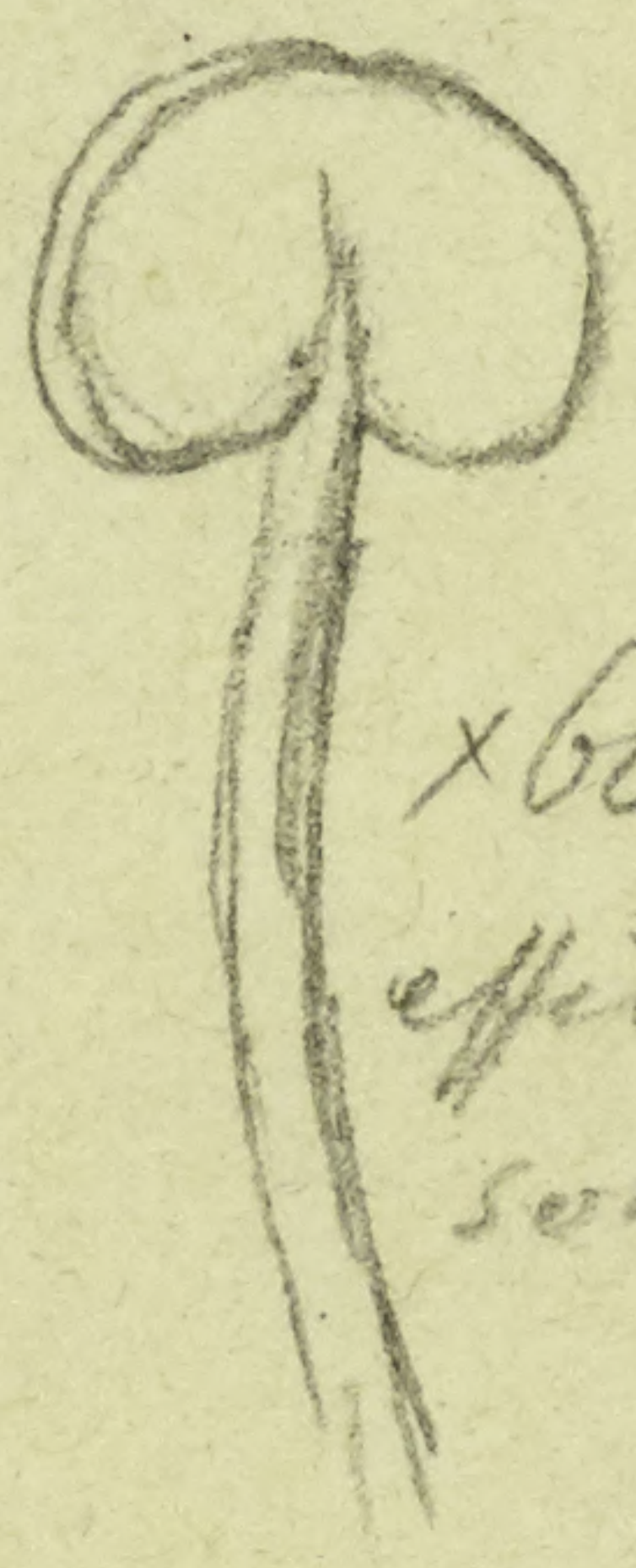
Audio, Rio

858



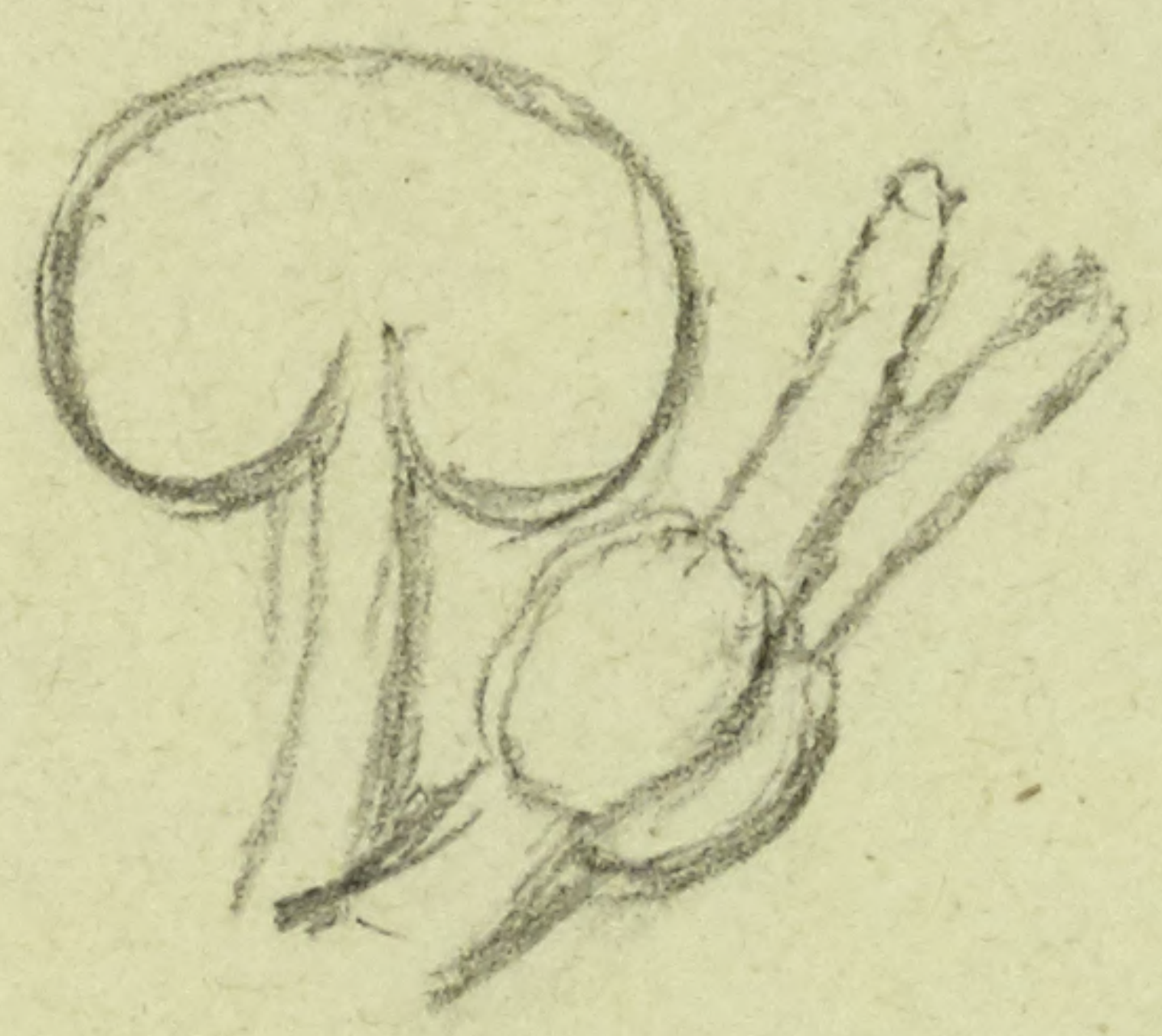
x60

flowering stigmata longer than usual



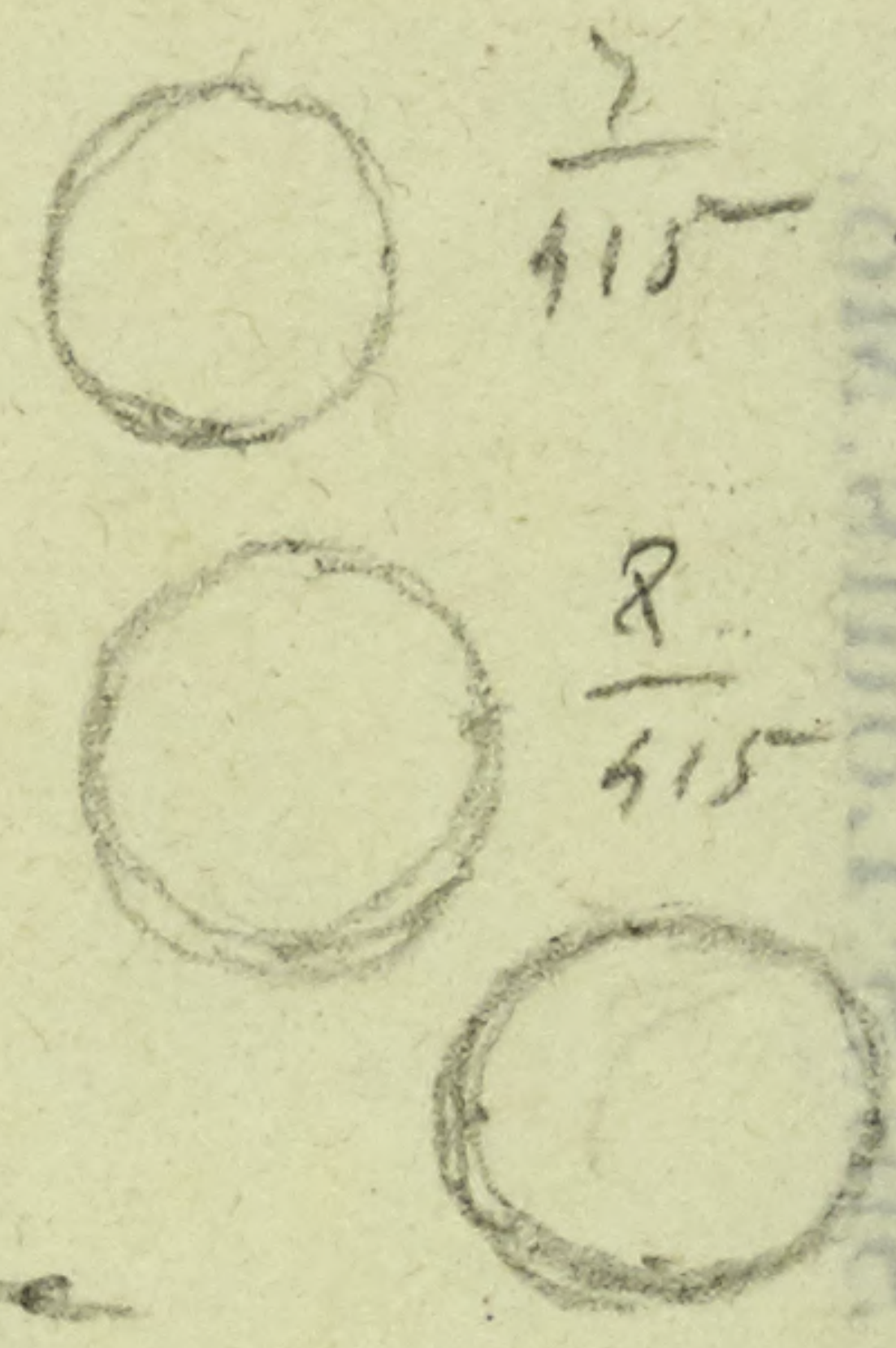
x60 effete soaked

x60



male flower before anthesis

female flower very young stigmata very short yet



$\frac{7}{415}$ = 0017 mm

$\frac{8}{415}$ = 0.019 mm

scarcely ellipt

0 1 2 3 4 5 6 7 8 9 10 cm copyright reserved

MISSOURI BOTANICAL GARDEN

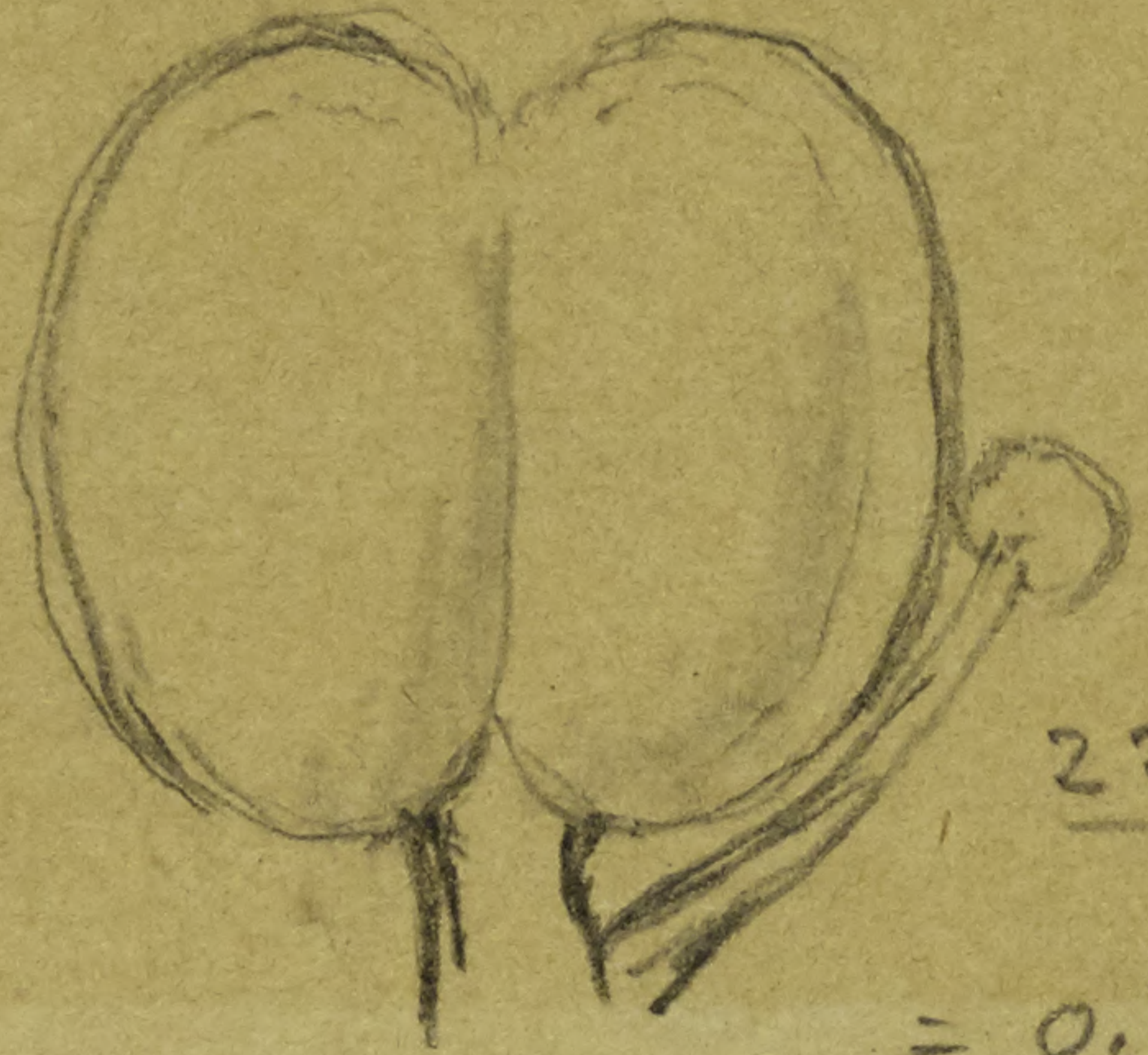
ALEX. LEITCH,
APOTHECARY & PHARMACEUTIST,
Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

5083 Callitriche Dec 10 1864

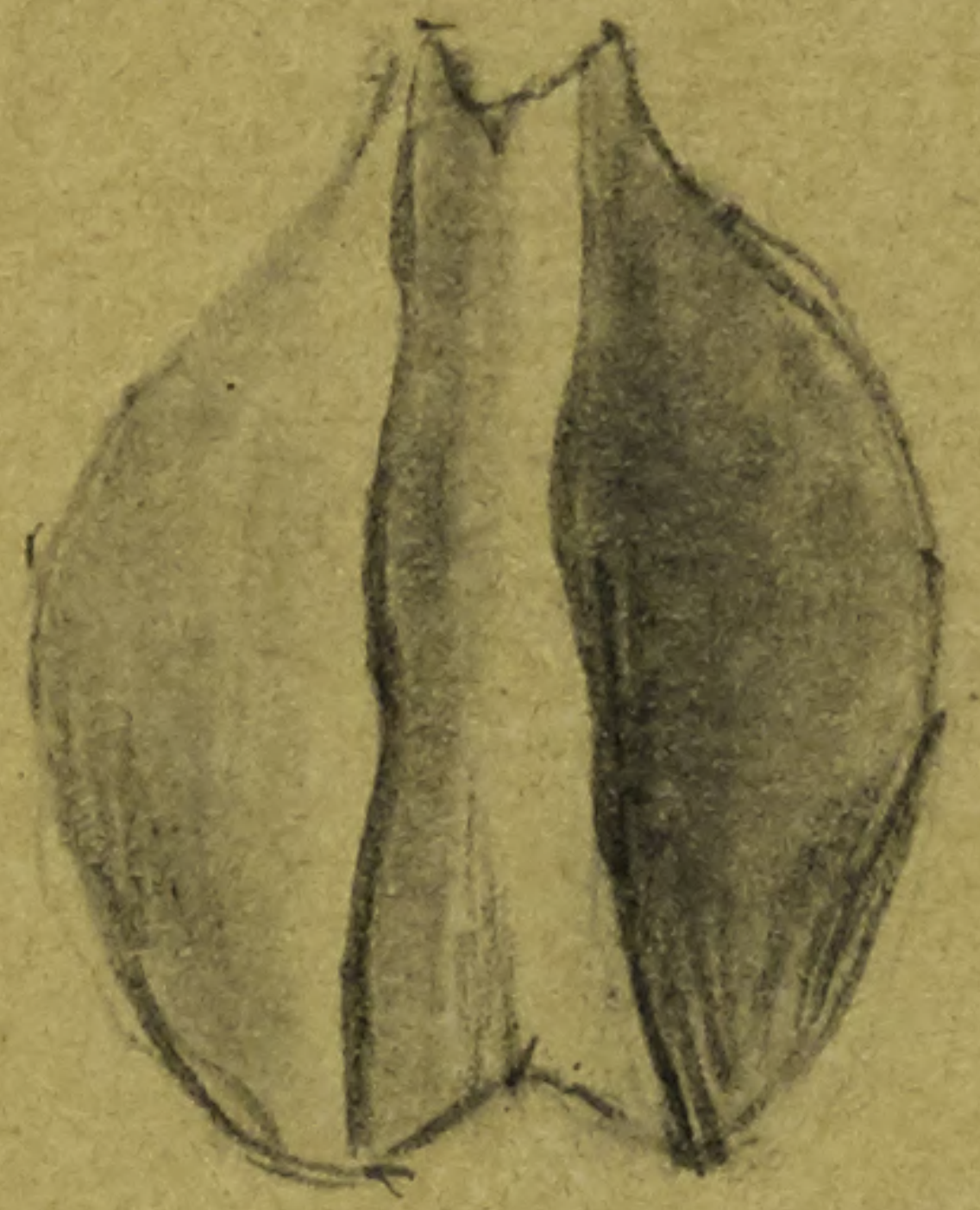
Spruce, Andes Ecuador ex Hb A Gray

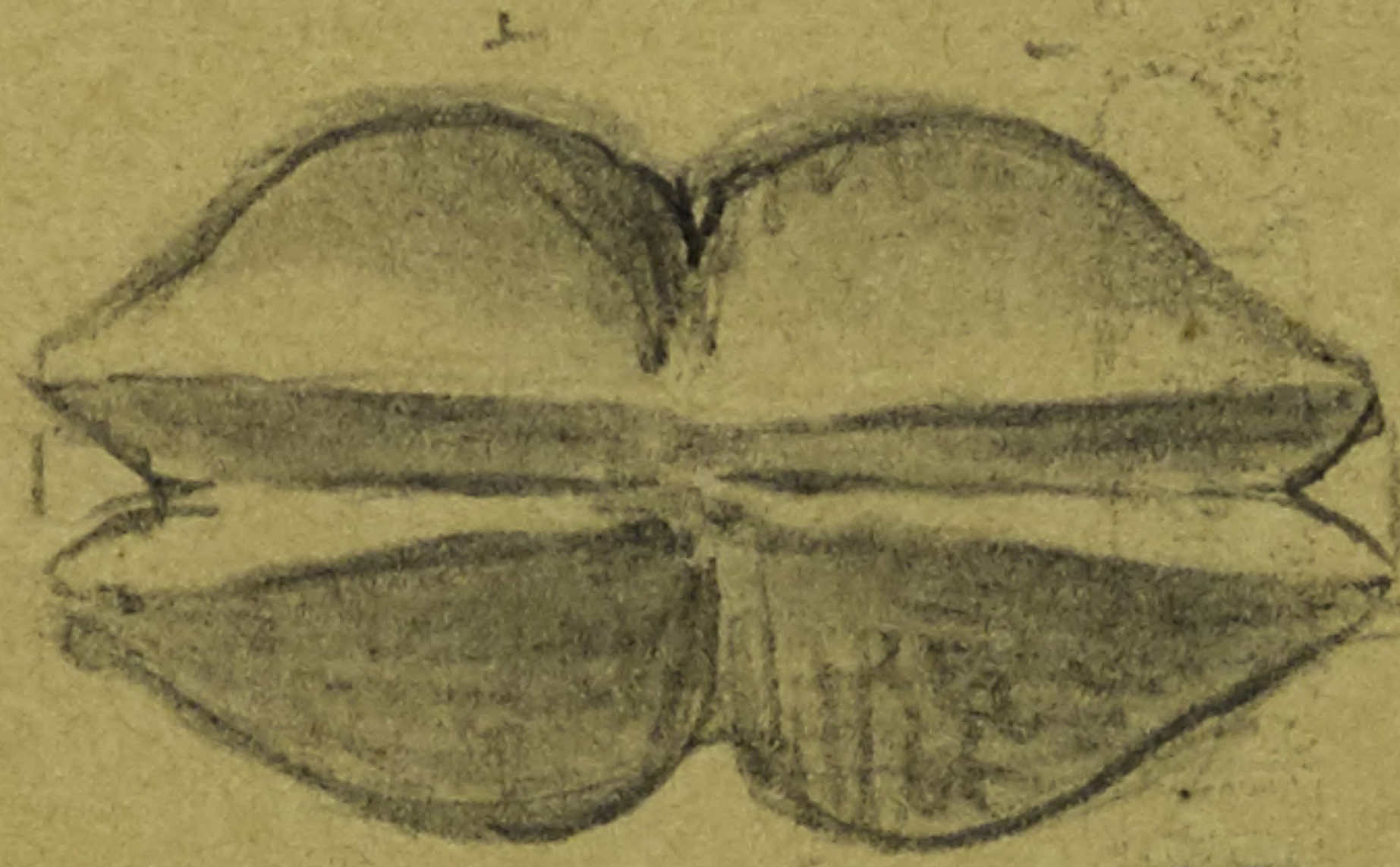
859

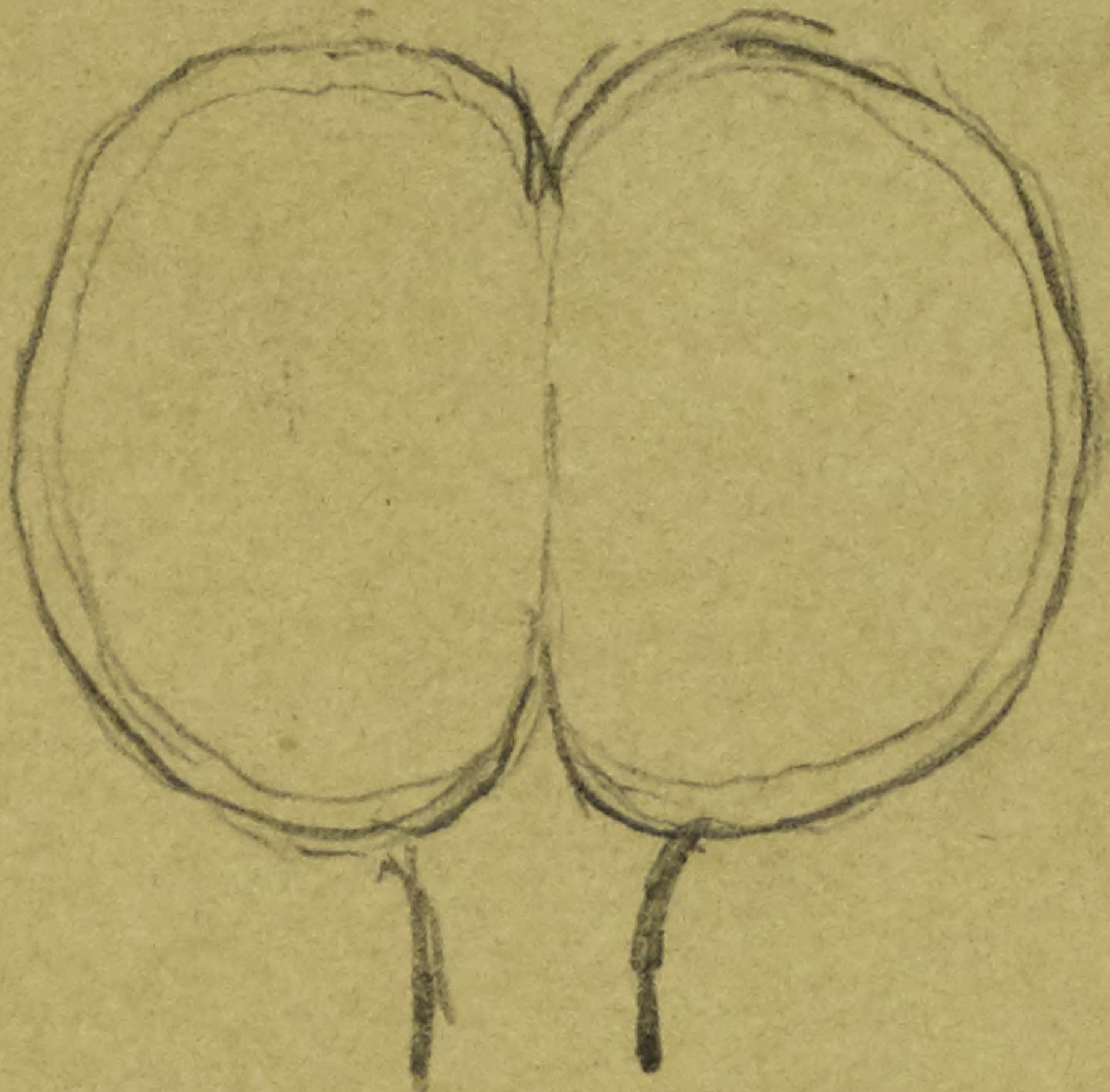
X 30



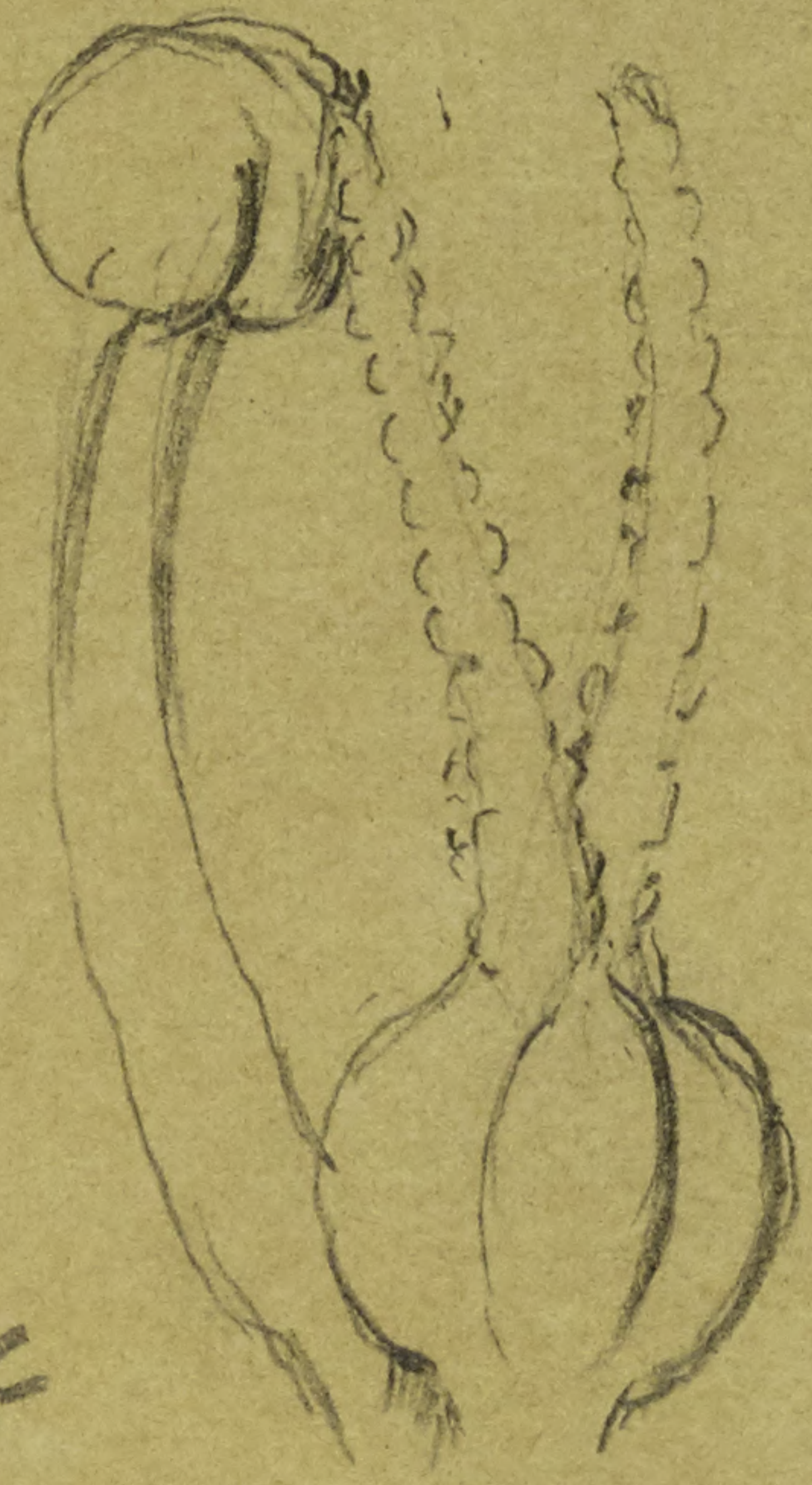
22 x 25 / 30 = 0.7 x 0.8 mm



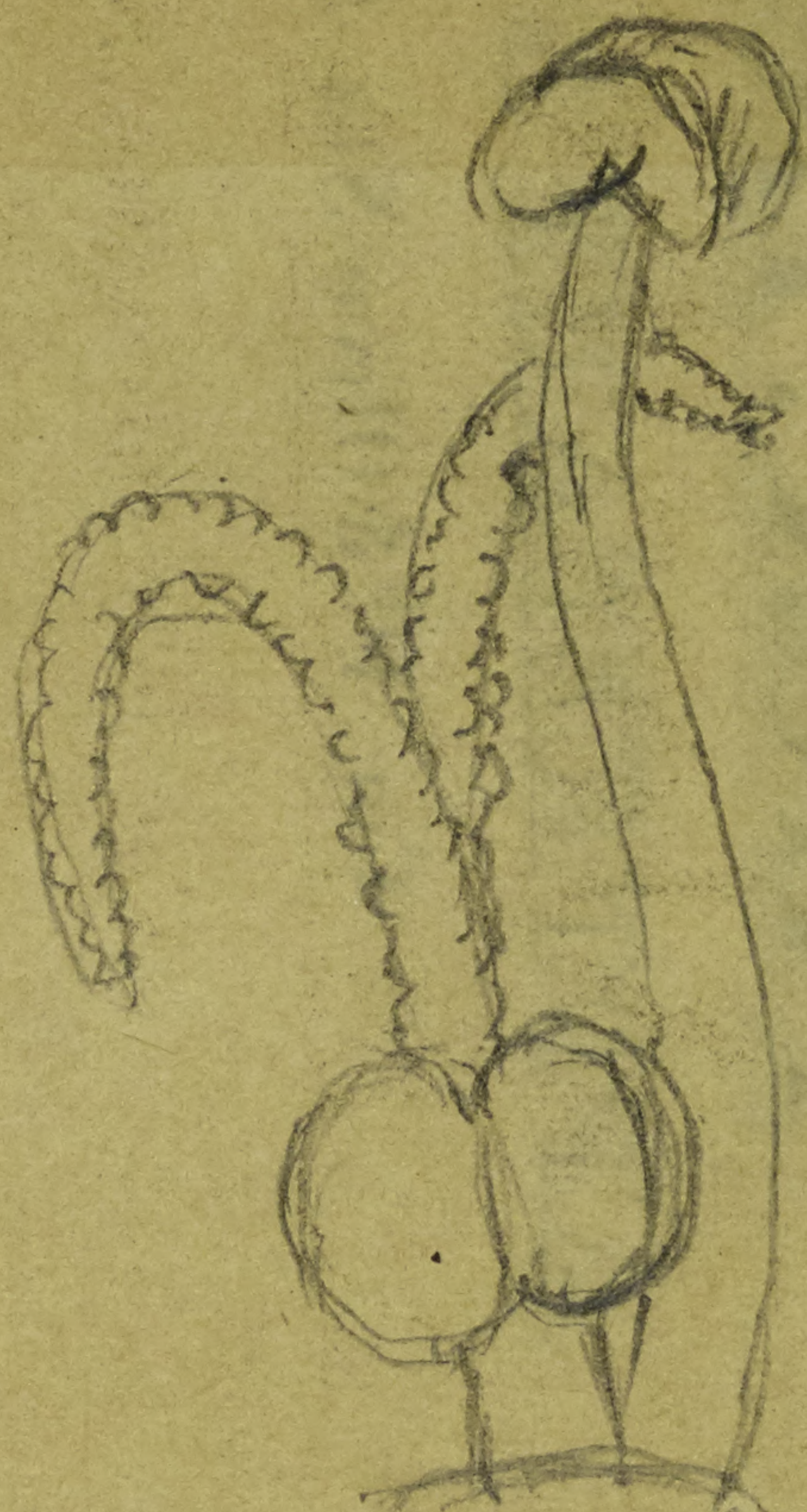




22 x 29 / 30 = 0.7 x 0.9 mm

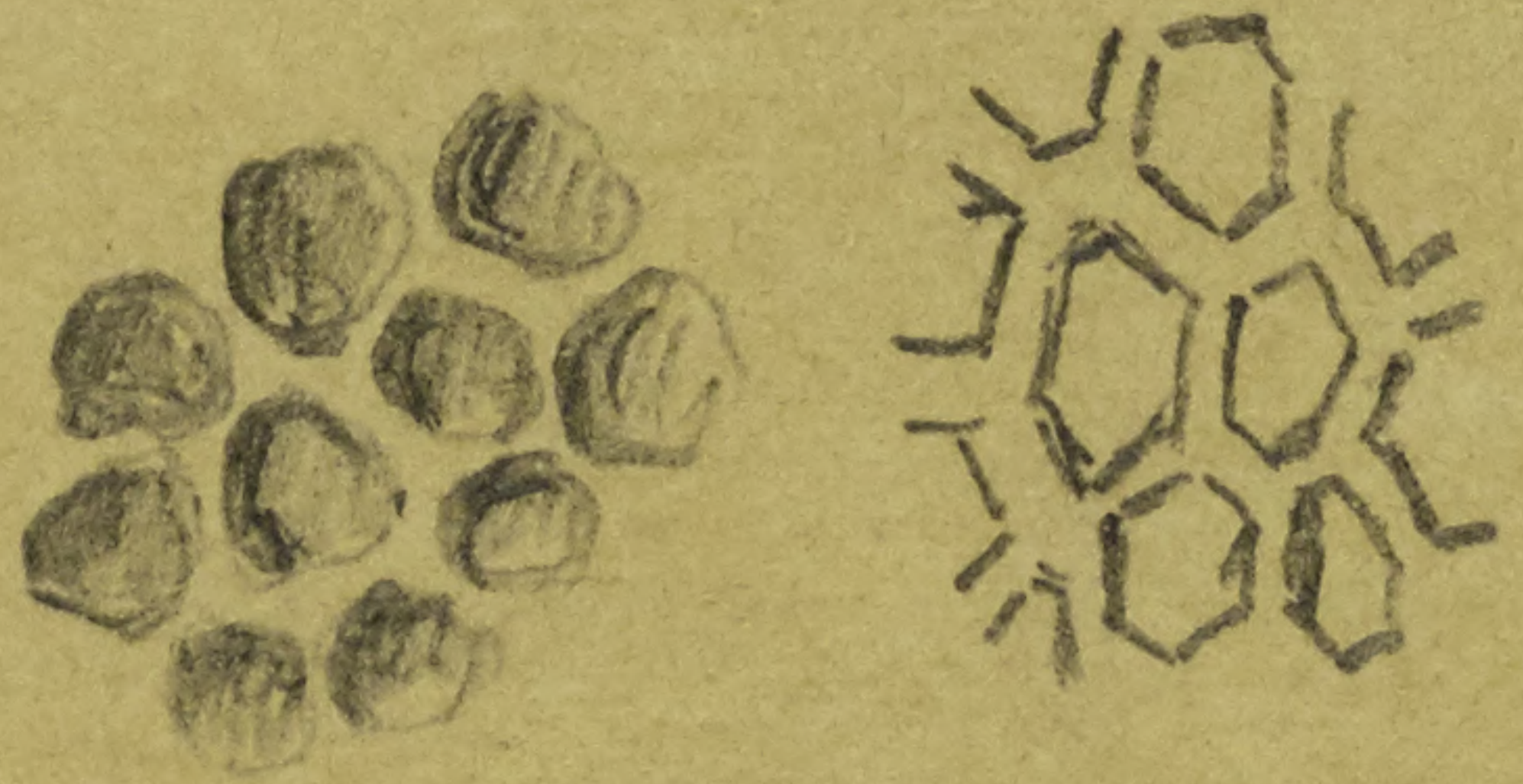


male & female flower x 60



male & female flower soon after flowering x 60

fruit strongly reticulated



surface x 150

fruit 0.7 - 0.8 m high
0.8 - 0.10 wide

0 1 2 3 4 5 6 7 8 9 10
cm
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MISSOURI
BOTANICAL
GARDEN

Alex. Leitch,
APOTHECARY & CHEMIST,
Cor. 4th & Olive Sts., St. Louis.

Callitriche turfosa √ Engelmann
Rept. – part

345–

859A

energy of his character, and with but a single man as his escort, and no other guide than his compass, he determined to continue on his course. After a wearisome travel of many days, and having encountered many privations and dangers, he and his companion, Cadotte, arrived safely, but in almost a starving condition, at the Flathead Village, situate on the western slope of the Rocky Mountains. In accomplishing this part of his arduous task, Dr. Evans passed directly through the heart of the Blackfeet country, and travelled a distance of more than two hundred miles in the main chain of the Rocky Mountains before he succeeded in finding a passage to the valley beyond. It is much to be regretted that the credit of the discovery of this important pass, which unquestionably belongs to the subject of the present sketch, has been unjustly transferred to another. It should have been named in honor of Dr. Evans instead of Cadotte, since it is well known that the latter person had no knowledge of such a passage, and, in fact, had not even been in that region before he went there under the guidance of Dr. Evans. After a few days' rest at the Flathead Village our traveller resumed his journey, and without encountering further difficulties, reached Oregon city with much valuable information concerning the extensive district of country through which he had passed.

In the prosecution of the geological survey of Oregon and Washington, Dr. Evans was actively engaged for nearly five years, during which period his travels extended over a large portion of those Territories. The results of his important labors, embracing a large amount of information relating to the geology, topography, geography and natural history of that interesting portion of the American continent, are embodied in his large report submitted to, and ordered to be printed by Congress at its last session. It was placed in the hands of the Public Printer only a few days previous to the death of its lamented author, and it is a matter of deep regret, that, owing to some informality, its publication must be delayed to await the further action of Congress. It is earnestly hoped that Congress will, at an early period, make the necessary provision for the printing of this important document, the preparation of which has cost such a large expenditure of labor and money, and which promises to be of the highest value to science and the people for whose benefit the survey was ordered.

September 2, 1861.

The President, Dr. ENGELMANN, in the chair.

Seven members present.

The following donation to the library was received: Bull. de la Soc. Imper. zool. d'Acclimatation, Paris, No. 7, Juillet, 1861, *from the Society*.

Mr. Holmes presented from Dr. B. F. Shumard the following skulls from Texas: *Felis pardalis*, Linn. (Tiger-cat), from Travis Co.; *Felis onza*, Linn. (Jaguar), from Hays Co., and *Dicotyles torquatus* (Peccary), from Travis Co.

Dr. Engelmann made some remarks on the temperature and humidity of the past three summer months. June and August were by more than two degrees warmer than the averages for these months, while July was cooler. The quantity of rain for each of these months was below the average so much interest among scientific men.* And such was his energy that, almost unaided, he gathered in a few weeks the extensive collection of fossil bones which furnished to Dr. Leidy the materials for his splendid memoir on the "Extinct Fossil Fauna of Nebraska." At the same time he collected a large and elegant series of Cretaceous fossils, some of which were described and figured by Dr. Owen in his final report on the Geology of Iowa, Wisconsin and Minnesota. The notes made by Dr. Evans on the geological features of that remarkable region were likewise of the highest interest, and from these Dr. Owen has compiled one of the most instructive and beautiful chapters to be found in his valuable report. In addition to his scientific duties, Dr. Evans had almost exclusive control of the business department of Dr. Owen's survey, which of itself involved an immense deal of labor. The satisfactory manner in which he discharged these onerous duties, often in the midst of disheartening privations and even danger, commanded the highest esteem and confidence of Dr. Owen and his associates, while his goodness of heart, uniform courtesy, and self-sacrificing disposition, secured to him their warmest friendship.

After the completion of the field work of the North-west Survey, (1850,) Dr. Evans received the appointment of U. S. Geologist for Oregon, which he accepted, and immediately entered upon the duties of his new office with his usual energy and zeal. The survey was organized by the appointment of Dr. B. F. Shumard to the position of Principal Assistant, who shortly after embarked for Oregon, by way of the Isthmus of Panama. Dr. Evans determined to revisit Nebraska, and thence proceed overland to Oregon by an unexplored route, with the view of determining the general geological and topographical features of a vast region, then almost unknown to science, and of ascertaining if there existed a nearer way from the Upper Missouri to the Oregon coast than that usually travelled. He proceeded to St. Louis, and there spent a few days in making preparations for his journey. He then took passage for Fort Pierre Chouteau, on board a steamer belonging to the American Fur Company. During this passage, which occupied nearly a month, cholera to an alarming extent prevailed among the passengers and employees of the Fur Company on board, several of whom died, and the mortality would have been far greater but for the kind attention of Dr. Evans, who, though himself laboring under an exhausting diarrhœa, allowed himself no rest, but in the triple capacity of physician, nurse and companion, was ever at the bed-side of the sick, administering to their wants, and encouraging them by his cheering words.

From Fort Pierre, Dr. Evans again visited the Mauvaises Terres, where in a short time he succeeded in obtaining a large collection of the fossil fauna of that region, even more extensive than his former one, and embracing a considerable number of new and interesting species. On his return to the Fort he set about preparing for his long journey, which from the hostility of the Blackfeet and other Indian tribes, together with the difficulties incident to the route, was regarded by the Indian traders as extremely hazardous; hence it was exceedingly difficult to find either guides or hunters willing to accompany him. After much persuasion, however, he succeeded in procuring the services of two hunters and a half-breed guide, they agreeing to go with him as far as the Flathead Village. With this meagre escort he started from Fort Pierre, but scarcely had he reached the borders of the Blackfeet country ere his hunters became alarmed, and unceremoniously left his camp during the night and returned to the Fort. Under these discouraging circumstances a person less courageous than Dr. Evans would have turned back; but difficulties served only to develope the indomitable

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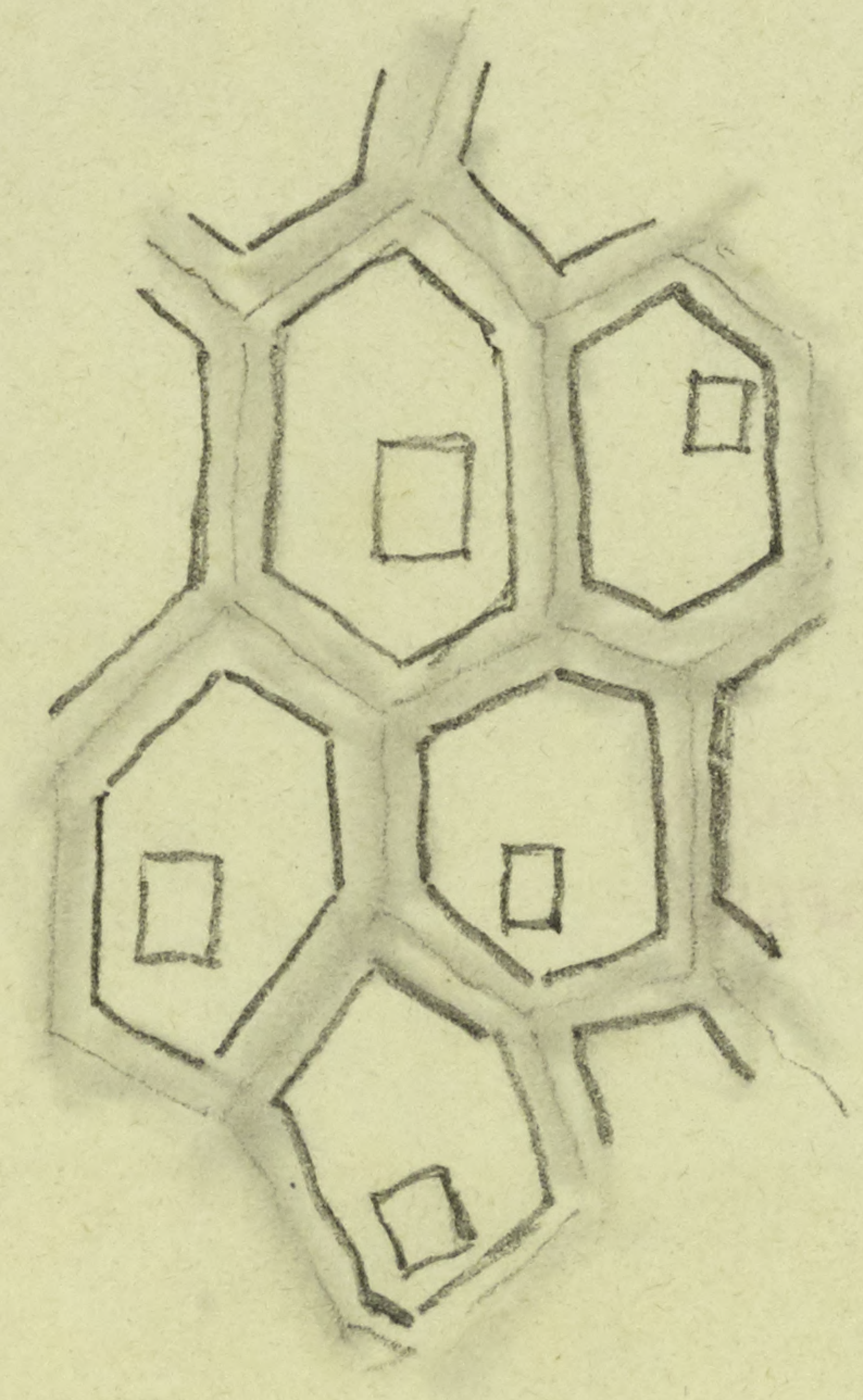
* To Dr. Hiram A. Prout is justly due the credit of having first called attention to the existence of such remains in that region by his excellent memoirs of Palæotheroid and other bones, published in Silliman's Journal.

C. Turfosa
Spruce 5053

Febr 19. 1865

860



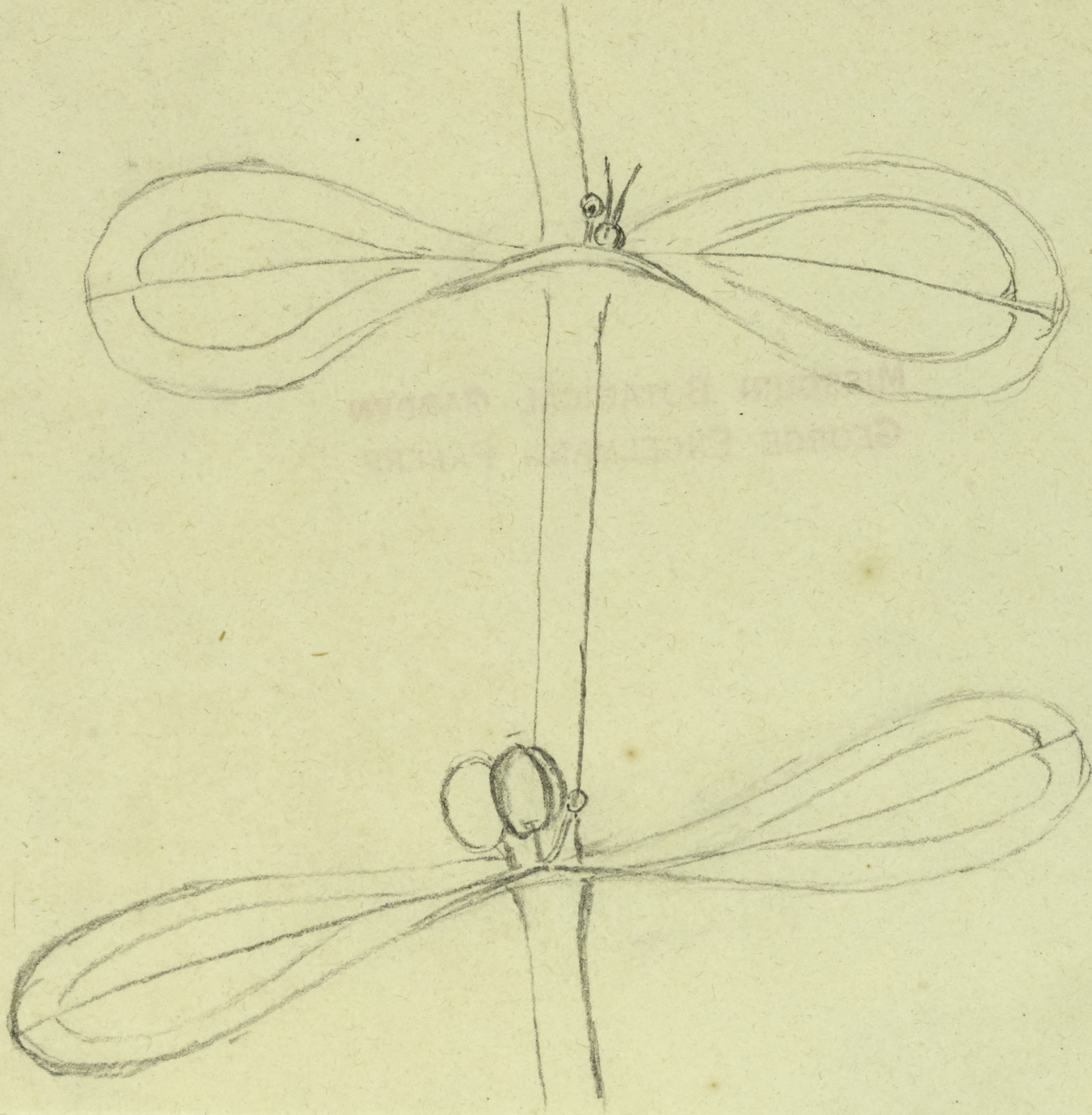
x 540

ALEX. LEITCH,
APOTHECARY & PHARMACEUTIST,
Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

Callitriche

Jan 3 1865

5053 Spruce, Andes, Ecuador
ex Hb A Gray



861

0 1 2 3 4 5 6 7 8 9 10
cm
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MISSOURI
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0 1 2 3 4 5 6 7 8 9 10
cm
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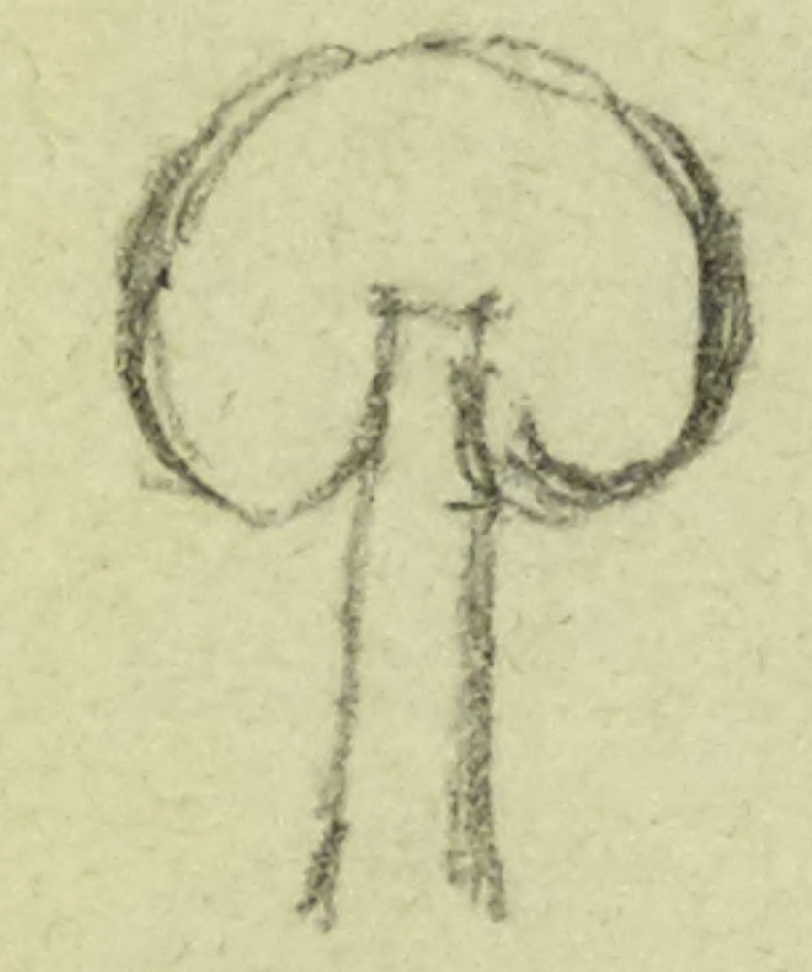
MISSOURI
BOTANICAL
GARDEN

Callitriche

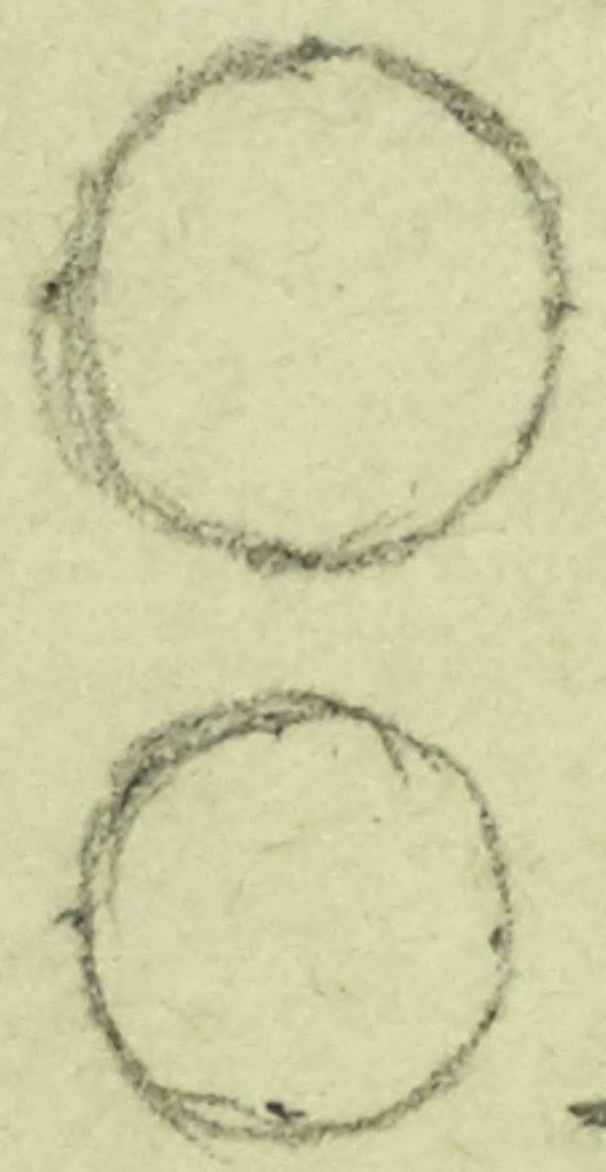
Jan 3d 1865

5053 Spruce, Andes, Ecuador, ex Hb A Gray

862



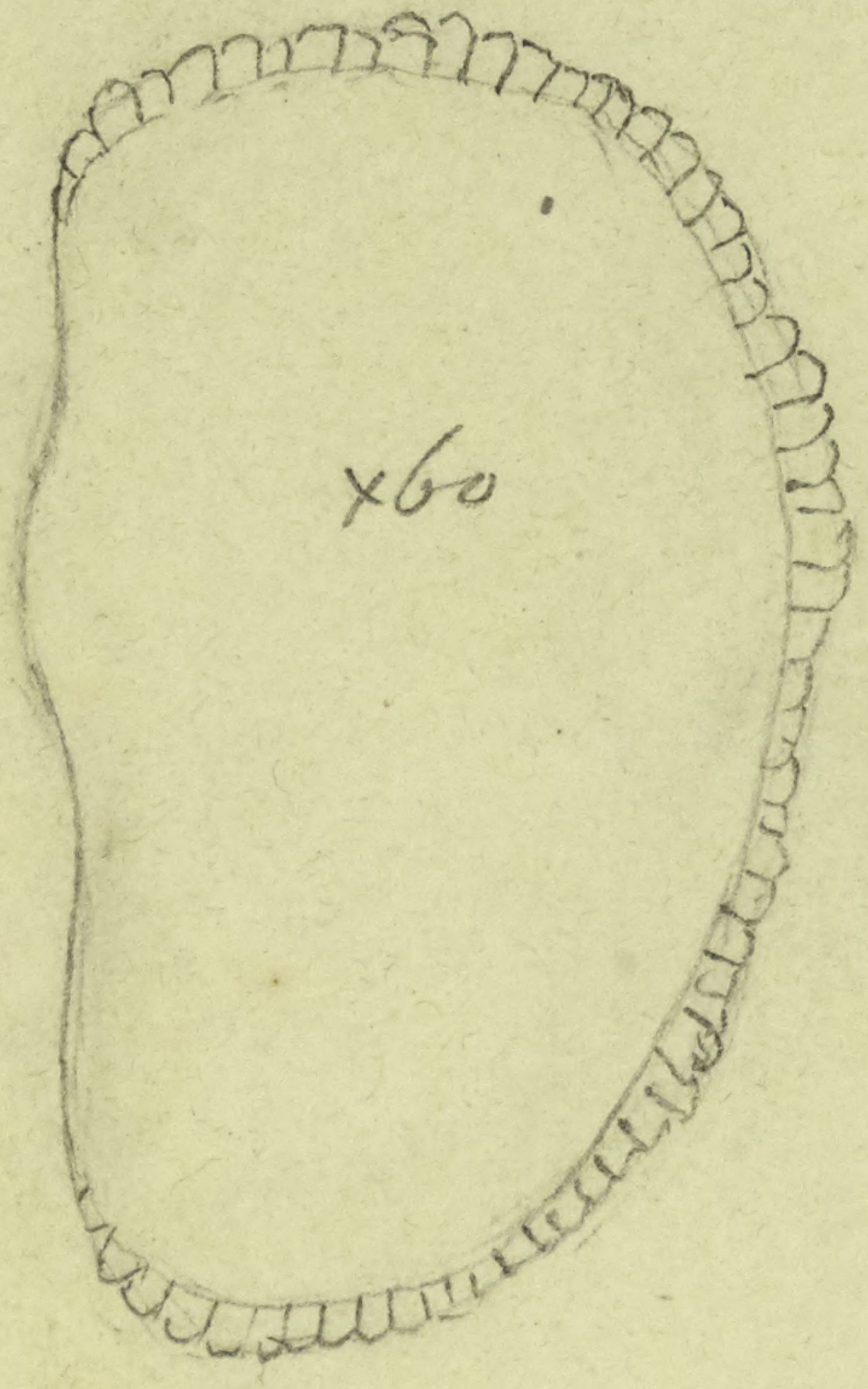
x60



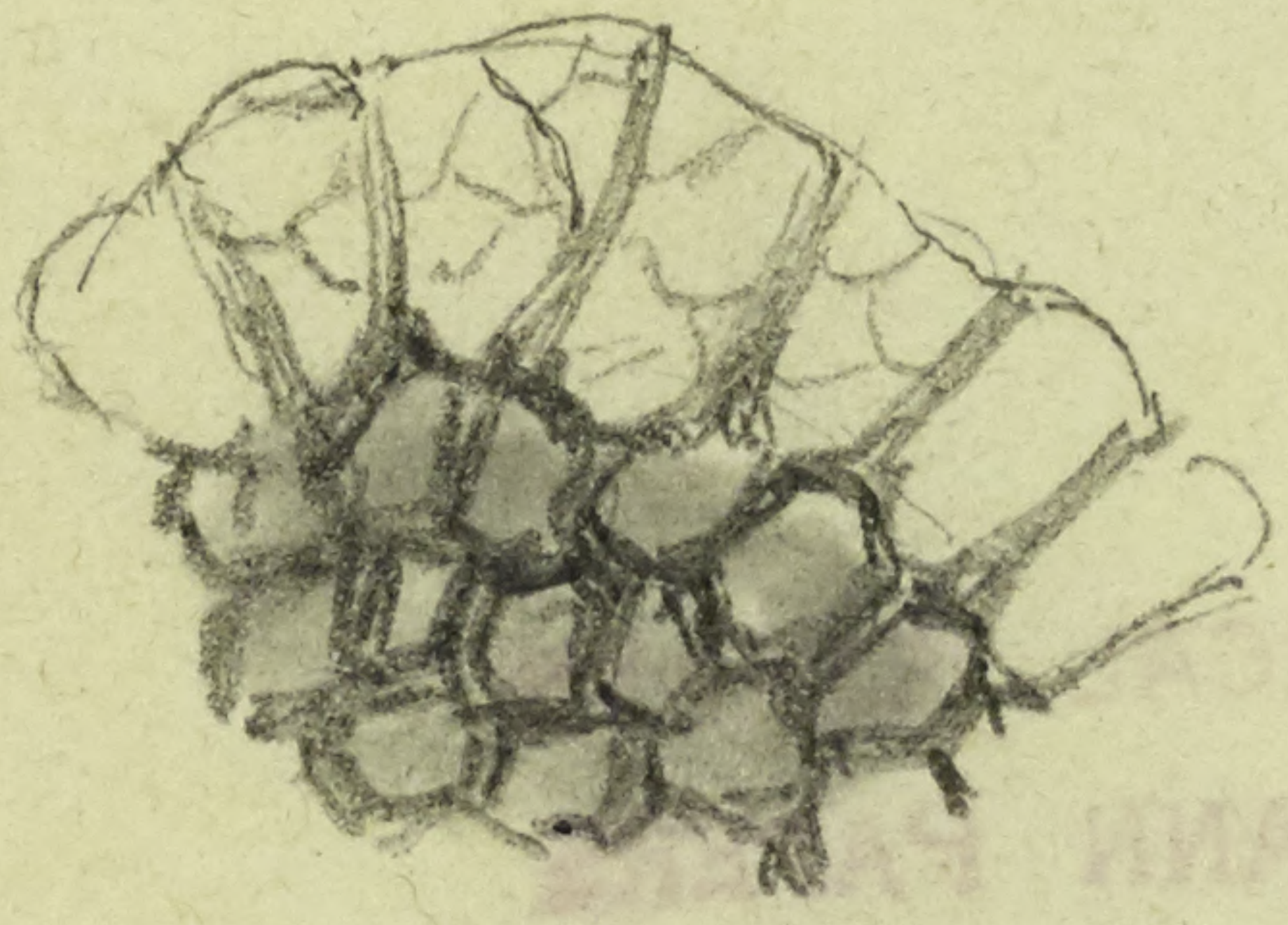
Pollen globose

x 415

7–8 / 415 = 0.017 –0.019 mm

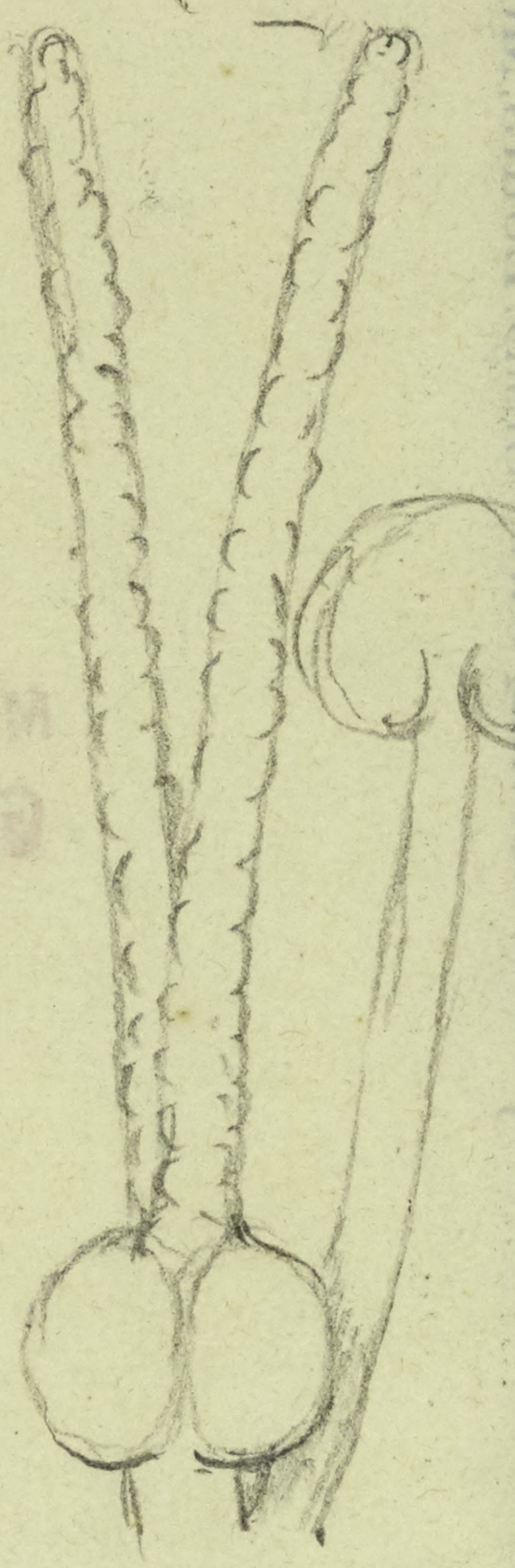


x60



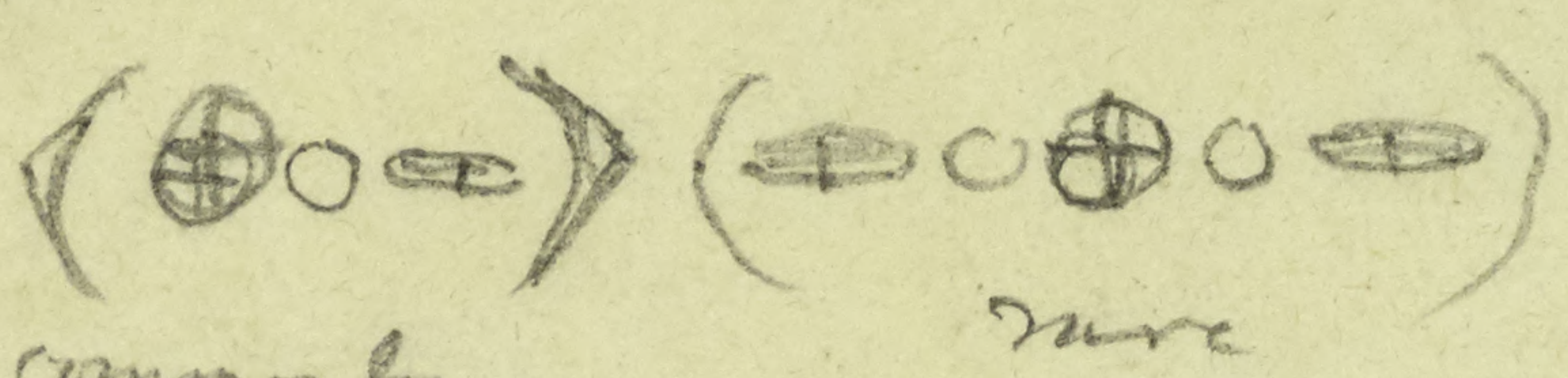
x150

no crystals seen in Parenchyma



after flower

x60



commonly

rare

ALEX. LEITCH,
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